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E. S. GAILLARD, M. D., and W. S. McCHESNEY, M. D.,

EDITORS AND PUBLISHERS.

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INDEX—Vol. II.

A.

PAGE.

Accepted Articles, 574
Atresia of the Vagina, Emmet, 89

B.

Brown, Bedford, M. D., Cerebro-spinal meningitis, 1
Ball, Extraction, Michel, 100

C.

Cerebro-spinal meningitis, Brown, 1
Chew, Samuel C., M. D., Strychnia in anæsthesia, 102
Chisolm, Julian J., M. D., Ovariotomy, 353
Climate in phthisis, Gaillard, 16

D.

Delivery of fœtal remains, Lewis, 260
Dickson, Samuel H., M. D., Disease, 465
Diphtheria, Gaillard, 175, 262, 376, 490
Disease; Its character and tendency, Dickson, 465
Donaldson, F., M. D., Local anæsthesia, 249

E.

Emmet, Thomas Addis, M. D., Atresia of the Vagina, 89

F.

Fairfax, O., M. D., Intestinal dejection of starch, 374
Fuqua, W. M., M. D., Exsection of the radius, 174
Functional affections nervous system, Séquard, 23, 107, 190, 284

G.

Gaillard, E. S., M. D., Climate in phthisis, 16
Gaillard, E. S., M. D., Ozone, 32, 113, 200, 294, 416, 536
Gaillard, E. S., M. D., Diphtheria, 175, 262, 376, 490
Gun-shot wound of the Bladder, Madison, 487

H.

Holloway, James M., M. D., Clinical notes of cases treated in different Hospitals, 123, 211, 302, 426, 544

I

Intestinal dejection of starch, Fairfax, 374

L.

Lewis, John, M. D., Delivery of fœtal remains, 260
Ligation of arteries, Thomas, 532
Lithotomy, Terry, 169
Local anæsthesia, Donaldson, 249
Logan, Samuel, M. D., Prophylactic effects of quinine, 412
Lymph vaccine, Wiesel, 14

M.

Madison, R. L., M. D., Gun-shot wound of Bladder, 487
Michel, R. Frayser, M. D., Extraction Ball, 100

O.

Obituary, 574
Ovariotomy, Chisolm, 353
Ozone, Gaillard, 32, 113, 200, 294, 416, 536

P.

Porcher, F. Peyre, M. D., Clinical notes cases treated in Charleston Hospital, 42
Prophylactic effects of quinine, Logan, 412

R.

Radius, Exsection of the, Fuqua, 174

S.

Séquard, C. E. Brown, M. D., Functional affections, 23, 107, 190, 284
Strychnia in anæsthesia, Chew, 102

T.

Terry, Carlisle, M. D., Lithotomy, 169
Thomas, H. L., M. D., Ligation of arteries, 532

W.

Wiesel, Henry J., M. D., Lymph vaccine, 14
Watson, Sir Thomas, 578

CLINICAL LECTURES.—Clinical notes of cases treated in Hospital, Charleston, S. C., Porcher, 42; Clinical notes of cases treated in different Hospitals, Holloway, 123, 211, 302, 426, 544.

CORRESPONDENCE.—London, May, 53—June, 127—July, 216—August, 311—September, 436—October, 553. Paris, May, 60—June, 133—July, 220—August, 304—September, 428. Elizabethtown, N. C., June, 71. Pisa, Italy, September, 316. Philadelphia, October, 433. New York, September, 434. Rome, October, 545. Dublin, October, 550.

REVIEWS.—Biographical sketches of distinguished New York Surgeons—by Sam'l W. Francis, M. D., 322. Catalogue of the University of Va., 324. On Spermatorrhœa—by Robert Bartholow, 327. Physicians visiting list—by Lindsay and Blackiston, 328. Annual discourse before the Mass. Med. Society—by Geo. C. Shattuck, M. D., 328. Medical register of the City of N. Y.—by Guido Furman, 328. Medical diagnosis—by J. M. Dacosta, M. D., 442. Practical Treatise on fractures and dislocations—by Frank Hastings Hamilton, 442.—Practical therapeutics—by Edward Jno. Waring, 443. Announcement of the University of Nashville Medical Dept., session, 1866-7, 443. A manual of ausculation and percussion—by M. Barth, and M. Henri Roger, 559. A handy book of ophthalmic Surgery for the use of practitioners—by John C. Lawrence and Robert C. Moon, 557. An introduction to Practical Chemistry—by John E. Bowman, 560. A guide to the practical study of diseases of the eye—by James Dixon, F. R., C. S., 560. Velpeau's lessons upon the diagnosis and treatment of Surgical diseases—translated by W. C. B. Fifield, M. D., 561. Catalogue of the Med. College of Va., 73. Principles and practice of obstetrics—by Gunning S. Bedford, M. D., 144. Prospectus of the medical course of Instruction in the Humbolt Medical College, St. Louis, Mo., 151. Recent advances in ophthalmic science; Boylston Prize essay for 1865—by H. W. Williams, M. D., 224. Why not? A book for every woman—H. B. Storer, M. D., 228.

MISCELLANEOUS.—Air cooler and purifier, 74; Aniline as a test for the adulteration of linen by cotton, 78; Bromide of potassium, 77; Cholera, 77; Deodorization and disinfection, 77; Baneful Effects of nicotine prevented, 154; Chloride of sodium, 155; Extracts from a report of a committee on trichiniasis at Chicago, 156; Ethereal copulation, 158; Improved method of producing intense heat, 157; Metal that expands in cooling, 157; Oil of Ergot, 156; Preparation of copaiva, 157; Physicians' advertisements, 154; Preamble and resolutions, 153; Silver plating, 157; American Medical Association, 236; Elixir pyro-phosphate of iron and calisaya, 234; Hæmorrhage from wounds of the hand, 235; Local anæsthesia, 335; Milk—to prevent its turning sour, 235; Perchloride of iron in cancer, 236; Prof. Wm. Warren Greene, 236; Salisbury's, Dr., Discovery of the cause of intermittent fever, 232; American Medical Association, 341, Itch, 342; Medical humour, 342; Prurigo ani, 341; Report of the cholera conference at Naples, 329; Sudden blanching of the hair, 342; Substitute for epsom salts, 342; University of Maryland, 341; Dressing of new-born infants, 450; Mercurial collodion, 449; Medical Journal, 449; Practical therapeutics, 447; Storer, Dr. H. B., 448; Spider's web, 449; Termination of motor nerves, 451; The International Medical College of Paris, 561; Lectures before the Peabody Institute, Baltimore, 562; Relief for spasmodic Asthma, 563; The Pacchionian Bodies, 564; Medical attainments vs. social talents, 564; Preparation of soluble Prussian blue, 564; Homœopathic Life Assuring, 565; Insufflation of medicated powders in gleet, 565; Deodorizing properties of ground coffee, Lancet, 565; Preparations for cholera, 566; The removal of Prof. Jones, 566.

Medical News.—Brande, Prof. 78. Medical Staff, 78. Maximilian, 78. Orders to Police, 78. Students, 78. Bumstead, Dr. Freeman J. 159. Circular No. 6, 159. Diphtheria Essay, 158. Powell, Prof. W. Byrd, 159. Physicians and Surgeons in Austrian Navy, 159. Valuable Work on medical statistics, 159. Arsenite of Strychnia, 237. Chimogene, 236. Donaghe, Wm., M. D., 237. Great prize essay in Electricity, 237. Goddard, Paul Beck, M. D., 236. Hastings, Sir Charles, 237. Hirschsprung, Dr., 237. Important discovery, 236. Mussey, Reuben D., 237. Nélaton, M., 237. Absorptive power of the skin, 343. Austria, 344. Artificial Limbs, 344. Death by electricity, 344. Department of health, 344. General Council Medical Education, 343.—Logan, Samuel, M. D., 343. Louisville medical schools, 344. Preservation of chloroform, 344. Paraffin, 344. Watson, Sir Thomas, M. D., F. R. S., 343. Asthma, 454. Gonorrhœa, 452. Medical Colleges, 453. Menstruation, 454. New anæsthetic, 453. Prize offered, 453. The Micro-Spectroscope in the detection of blood stains, 566. The military asylum at Milwaukie, 567. A prize of $250 offered, 567. Female Doctors, 567. Local anæsthesia in Cæsarian section, 568. The Mott memorial library, 568. Holland, Sir Henry, 568. Sir Thomas Watson, 158.

Editorial.—Medical Journals, 85, 164. Medical Associations, 79. Metropolitan Board of Health, New York City, 84. Matrimonial, 87. 167, 246, 350, 460. Mortuary, 167. Medical College of Va., 164.—Medical Philology, 160. Medical Skepticism, 238. Clinical Lectures, 345. Notices, 85, 160. 245, 350, 459. Obituary, 460, 574. Richmond Medical Journal, 243. Statement to subscribers, 446. The close of the year, 569. Subscription, 573.

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The Richmond Medical Journal.

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ORIGINAL COMMUNICATIONS.

Art. I.—Observations on Epidemic Cerebro-Spinal Meningitis.

By Bedford Brown, M. D , of Washington City, D. C.

The following observations relative to epidemic cerebro-spinal meningitis were made during the prevalence of a very malignant epidemic of that affection, in North Carolina, from the year 1862 to 1864, and are based on the results of personal experience. Citizens and soldiers were both equally affected. In the presence of the numerous valuable and accurate histories of this affection, which have been heretofore published, it would be both unnecessary and uncalled for, to repeat what is already known to the Profession. Hence, in this particular, it will be the object to state such facts and peculiarities, as have escaped the attention of others, or that they may have omitted to make public. All local affections, on assuming epidemic forms, undergo a transformation of type, by becoming extensively complicated with a series of morbid changes in the vital operations of the economy, resulting from poisonous influences received from without. As a striking evidence of the action of this poisonous influence on the vital properties of the blood, the general functions of the system, and integrity of the molecular organization, the marked *depression* of the vital powers and reduction of the vital standard, universally associated with epidemic affections, may be cited. This is so peculiarly and constantly a characteristic of epidemics, as to often mask and obscure local symptoms entirely.

The partial arrest or suspension of the vital functions of assimilation and nutrition, and of those blood changes essential to their operation, in all epidemic diseases, is a feature peculiarly manifest during the progress of epidemic meningitis. These changes here, as in all other zymotic affections, are due to the action of a blood poison, the local lesions being a mere link or incident in the series of morbid changes in progress. It is highly probable, that in the developments of epidemic affections with local lesions, certain specific poisons affect or intercept the nutrition and organization of certain systems or tissues. The rapid disintegration and waste of nervous matter, observed during the progress of epidemic meningitis, and which will be specially alluded to in future, is due not simply to inflammatory action in nervous material, but to serious interruptions of the nutritive functions of that tissue. This tendency, or rather property of certain epidemic poisons, to affect the functions and molecular organization of certain tissues, is equally true of epidemic erysipelas, pneumonia and peritonitis. But under such circumstances, none of these affections appear in their simple acute form, as when sporadic. Their type has been modified by the action of a blood poison in the circulation. The fearfully rapid disorganization of structures, when attacked by epidemic disease, affords another conclusive evidence of the serious extent to which nutrition is impaired in this, as in other affections of this class. Otherwise the functions of renovation would be sufficient to counteract that tendency, to a certain extent at least.

That peculiar and vital property of the blood termed *plasticity*, is found to be constantly diminished in epidemic meningitis, as in other analagous affections of a zymotic character. It is through this fact that we can understand and appreciate the rapid and destructive disorganization of pulmonary tissue in typhoid pneumonia, the softening of parenchymatous structures in yellow fever, and nervous tissue in the present affection.

Forms of Epidemic Meningitis.—The division of epidemic meningitis into four principal forms will be found convenient, in a diagnostic, prognostic and therapeutic point of view

These different forms are comprised in the inflammatory, ataxic, neuralgic and paralytic. While the fact that inflammation in some form, is present in a large majority of cases, is not denied, yet the proposed arrangement is not based on arbitrary principles simply, but refers to the general features of the disease, as well as the local peculiarities.

Inflammatory form.—The type of this form, as its name designates, is active, sthenic and acute. The preceding rigor and following reäctive fever, are both decided and violent. Pain in the head and loins is excruciating, while the delirium is usually furious. Constipation, nausea, vomiting and diminished urinary secretion are prominent features. This, in truth, is the rarest of all forms of epidemic meningitis, and during a very considerable experience, I have not seen more than two cases coming up to that standard. This casual description is given more from the fact of its rarity, than otherwise. An intense degree of epidemic influence, when prevailing, is utterly antagonistic to the development of the genuine type of active acute inflammation.

Neuralgic form.—This is probably one of the most frequent forms of epidemic meningitis, and usually the most protracted. The inflammatory lesion is subacute in type, and is no doubt confined strictly to the meninges of the cord and brain, and origins of large spinal nerves, which often evince decided tenderness, on pressure, over a considerable extent of their tract. The most prominent characteristic of this form is the exquisite neuralgia attending it, and pervading the entire cutaneous surface, and the tracts of the principal nerves arising below the lesion.

Febrile reäction is usually moderate, the skin being often soft and relaxed, while the pulse is compressible, and not much accelerated. The prognosis is probably the most hopeful of any, in the genuine neuralgic form, from the facts of protracted duration and the peculiar anatomical structure involved.

Ataxic form.—In the ataxic form, symptoms of excessive nervous excitement, with general depression, predominate. Delirium, though not violent, is always present, and usually of the type characteristic of mania a potu. It is a low and busy delirium, in which the mind is constantly engaged with objects either present or absent. Under these circumstances, the mind often evinces an astounding acuteness, in sallies of wit, repartee, or readiness of argument. In one case observed, the powers of memory were greatly sharpened. I have also observed cases of this description, in which the patient carried on an incessant conversation, either with persons present or by soliloquy, for five or six days and nights in succession. It is in this form that local lesion is occasionally found absent. Among other nervous symptoms, subsultus and intense acuteness of the special senses are prominent. The temperature is generally much reduced below the natural standard, and the pulse is generally feeble and frequent. This is always a dangerous form. Under the influence of excessive and constant excitement, the disintegration and waste of nervous material must be very great and exhausting.

Paralytic form.—Of all the different forms of this mysterious affection, this is doubtless the most fatal. Paralysis in some form, or coma, appear as marked characteristics from an early period. It is here that those disorganizations of nervous structures by softening, and otherwise, are revealed after death and after attacks of a fearful degree of rapidity. Indications of blood poisoning are abundant in this type of the disease, presented in the form of spanæmia. The patient is often crushed, by vital prostration, in the space of a few hours. There occur in this form of epidemic meningitis, obscure cases of softening of nervous tissue with inflammatory products absent, which I have reason to believe are the results purely of blood poisoning, and standing in an analagous relation to softening of parenchymatous tissues peculiar to adynamic forms of disease. Stupor and insensibility are also early and prominent features. The pulse becomes very slow and excessively feeble, often disappearing entirely, to reäppear more faintly than before—thus alternating until it ceases to return forever. The patient presents the blanched appearance of profound syncope.

Nature of Epidemic Meningitis.—While local inflammatory lesions in some portion of the nervous centres are present in a great majority of cases, in certain exceptional instances, they are absent, and in others, still more rarely, there are structural disorganizations in the form of softening, without inflammatory products. Even these rare exceptions are sufficient to settle the question, that it is a general and not simply a local affection, and that it belongs to a very extensive class of zymotic or blood diseases. Structural changes in distant organs, as softening, ecchymosis, serous effusions, &c., all denote important blood changes and grave obstructions to the proper metamorphosis of that fluid. The general aspect of the affection bears, throughout its progress, characteristics as clearly specific as those of typhus or cholera. The progress of the disease, and the subsequent convalescence, afford ample evidence of the serious impairment of the nutritive functions. In this respect it bears a striking analogy to others of its class. The type of fever preserves this specific character with remarkable constancy. The soft, white, flabby, broad, or enlarged tongue of epidemic meningitis is as constant and specific a symptom as the red, crusty and pointed tongue is of typhoid fever. Only in rare exceptions is the temperature of the surface intense, as in other forms ot fever. I have watched carefully for typhoid indications, but have not found them. The disease pursues a course specific and peculiar to itself. At the same time, marked vital prostration is almost a constant associate.

Special Indications.—Muscular Contractions.—Certain facts, connected with the history of the muscular contractions, peculiar to this affection are interesting. According to my own observation, contraction of the extensor class of muscles is the prevailing rule, and the flexor class the exception. This rule applies to the extensors of the neck, back, forearms, wrist, phalanges of fingers, and the feet. Rigid extension of the index and middle fingers, separate or together, I have frequently observed associated with other muscular contractions. But as an early (often the earliest) indication of meningeal mischief, I have in a number of instances observed rigid extension of one of these fingers alone, and when no other muscles were involved, when the mind was clear, and no suspicions of cerebral disease existed. I have seen this occur in several instances during the progress of infantile pneumonia, while epidemic meningitis prevailed.

I have also observed, as another early indication, rigid contraction of the gastrocnemii of one side, and extension of the foot.

Condition of the nutritive functions.—The great, and often rapid, reduction of temperature, diminution in force and volume of pulse, disintegration and waste of tissue, as manifested in the emaciation, and in the constituents of the urinary secretion, all unite to indicate the extent to which the standard of vitality is reduced, and the functions of assimilation and nutrition are interrupted. The tongue, so constantly pale and flabby and œdemateus, affords another indication of imperfect nutrition and that the plastic materials of the blood have, through the action of a blood poison, been partially unfitted to subserve that purpose. During the year 1864 the entire wheat crop of North Carolina, after being reaped, was subjected to one month of incessant wet weather while in the field, and before it could be secured. Consequently there was not to be found a bushel of perfect wheat in the country. A larger portion was damaged to such an extent as to render it unfit as a nutriment, and even dangerous as a cause of disease. Yet from the exceeding scarcity of breadstuffs, all classes were forced to subsist on it. It was during the succeeding Winter and Spring that epidemic meningitis appeared in my section of the State, and prevailed with great malignancy.

I found new army recruits very liable to its attacks. All those changes in the habits of life, in the exposure and change of diet, incidental to their novel situation, and the mental depression arising from leaving home, combined to reduce the powers of life, and give a low type to morbid action. Some of the most interesting evidences of an impaired nutrition in epidemic meningitis, are found in the sequelæ of that affection.

It is often that many months succeeding an attack, are required for the blood to regain its nutrition, and plastic properties, and for the renovation of the emaciated and reduced tissues. The general condition of these cases often borders upon leucothæmia. The entire system of nutrition appears to have been almost suspended.

State of the Secretions.—The action of all those organs composing the alimentary canal is impaired, and consequently their secretions are diminished, and constipation ensues. This torpor is probably due to imperfect action of the reflex system of nerves. But the urinary secretions constitute one of the most interesting fields of observation in this affection. According to my own experience, in epidemic cerebro-spinal meningitis, the triple phosphates of magnesia, lime and ammonia, are always found in excess in the urinary secretions. In some the excess was slight, while in others it was very great, the deposit falling to the bottom of the vessel in abundance. Its presence here, in excess, must be considered as the waste material, resulting from a too rapid disintegration of nervous structures. I believe that it may be said, with truth, that its excessive presence corresponds with a prominent development of nervous symptoms. In two cases, attended with constant delirium, subsultus, and vigilance, and with great acuteness of sensibility, the triple phosphates were thrown down as abundantly, as is usually seen in paraplegia from injury of the spine. This excessive disintegration, and waste of nervous material, is due partly to an impaired nutrition, as well as to local organic action. While in those very rapidly fatal cases, the triple phosphates are usually found in moderate excess, in the more protracted, they are found in abundance. This is particularly true of the neuralgic and ataxic forms.

Softening of Nervous Structures.—Softening of the nervous structures of the cord and brain, without inflammatory indications, though rare, is in certain cases nevertheless found. These peculiar cases are evidently due to general causes in epidemic meningitis, and bear a near analogy in nature, and origin, to the process of softening, occurring in the various vital organs, during the progress of typhoid, typhus, yellow fever, and other zymotic affections.

This species of softening constitutes, doubtless, only a part of the series of derangements occurring in the nutritive functions. As a result of the action of the blood poison of epidemics on the plastic materials of that fluid, and the nutrition of the organism, the process of softening will be found much more common than is suspected.

Meningeal Fever.—During the prevalence of malignant epidemics of meningitis, and specially in families severely afflicted with it, cases of fever not unfrequently occur, presenting many of the general features of the disease, without the local indications. The peculiar tongue observed in meningitis, and even a slight excess of triple phosphates in the urine are present. This form of fever will usually pursue a mild course, and terminate favourably, with but little treatment. In other instances after a more malignant type, a fatal termination ensues, and after death no local lesions are revealed. Yet it bears the true impress of the type of fever peculiar to epidemic meningitis. And in type, it presents little or no resemblance to either typhoid, or active acute inflammatory fever. It is probably somewhat analogous to scarlatina simplex, or rubeola sine catarrho. As an interesting fact, which may be stated here, in connection with the epidemic history of this affection, it appeared and prevailed, with great malignity, in a North Carolina brigade, of which the writer was senior Surgeon, but was confined to only five companies, which had volunteered from the same County and at the same time. They had been in the service three months. But the singular feature in the case was, that the disease appeared and prevailed with equal severity in their own County, at about the same period. These soldiers had, no doubt, retained the germs of disease within their systems for three months or more. This protracted retention of epidemic, or miasmatic poison in the system, in a dormant state, is not uncommon in other zymotic affections.

Complications.—I have not witnessed, at any time, epidemic meningitis associated with the typhoid fever of Louis. Indeed, so far as I am aware, while the former was prevalent, the country was very exempt from the latter, and vice versa. But on the contrary, its complication with pneumonia, of a peculiar type, was exceedingly common, particularly in army life. These complicated cases were peculiarly modified by the existing meningitis. Great stupor, excessive prostration, often coma from the beginning, with muscular contractions sometimes confined to a single muscle, at other times to the back or to one limb, characterized them. The general signs of pneumonia were entirely obscured, except a peculiar respiration of a gasping spasmodic character, and somewhat accelerated in frequency. I observed in the cases of several children, in the same family, suffering from primary pneumonia, the early symptoms of meningitis appear during the progress, in the form of contraction of the extensors of the fingers of one hand, and sometimes of only one finger. This indication occurring during an epidemic of meningitis, would be amply sufficient to determine the character of the new complication. This tonic contraction of a single muscle, or set of muscles, of the extensor class, is, I believe, of any one symptom, the most characteristic of cerebro-spinal meningitis. I have seen the extension so rigid that the limb would remain in the position placed, as in catalepsy, for a length of time.

Duration.—In my own experience, calculating from the earliest indication, epidemic meningitis will rather, in a majority of cases, exceed a week in duration, than fall under that period. The more malignant cases of the paralytic form will usually terminate within twenty-four hours. Another class, and particularly the inflammatory variety, will survive three or four days. The neuralgic and ataxic will frequently go on from one to eight, or even ten weeks, and then recover.

Treatment—Bleeding, general and local.—Under the peculiar circumstances of mysterious origin and nature, and the extraordinary fatality attending this affection, in the commencement of my experience with it, my mind was much more impressed with the local than the general symptoms, and I deemed it justifiable to test fairly, the powers and virtues of general and local depletion.

After testing thoroughly, to my own satisfaction, the merits of depletion, general and local, I was forced to the conviction that, as a remedy, it could avail nothing in the treatment of epidemic meningitis, but is possibly injurious. If the disease were simply acute, and local in character, much good might be expected of it. But belonging, as I am convinced it does, to the class of zymotic, or blood affections, direct depletion would be as appropriate in typhus gravior, or more properly diphtheria, as in this. I remember two cases of the genuine inflammatory form, of great violence, and attended with frequent convulsions, in which depletion was carried to an almost unheard of extent, and from the very beginning, without modifying the character, or checking the progress of the disease for one moment, except to rather hasten the termination. Depletion, I am convinced, does modify the character of the disease for evil. By reducing the vital standard, and the recuperative energies, it hastens or encourages the tendency to nervous disorganization, or softening. Let no one be deceived by this remedy, with the hope of relieving congestion and inflammation. I have tested it in numerous cases, under supposed favorable circumstances, without, in any instance, a single good result.

Eliminations.—As derivatives from the great nervous centres involved, and as a means through which the morbid epidemic poison, and the excess of effete and noxious material, constantly accumulating in the system, in consequence of the disorganizing influences in operation, are removed from the circulation, these rank among the most important remedies in epidemic miningitis. They embrace purgatives, diuretics and diaphoretics. They are all valuable and indispensable.

Purgatives.—The bold and undaunted administration of active cathartic remedies in epidemic meningitis, constitutes one of the most important considerations in the treatment, and is applicable to almost all forms. In my own experience, no instance of recovery occurred without the aid of active purgation, while in a majority of those who died, it was more or less neglected. The depressing tendencies associated with the history of this affection, would appear to interdict this plan of treatment. To the contrary, active purgation relieves the nervous and vascular oppression. The peculiar tongue of this affection, I regard as one of the surest indications, not only of the necessity for free purgation, but really, as a guide or criterion of the degree of that necessity. With a broad, soft, white, spongy tongue, we have a principle of action to direct us in the administration of cathartics, always safe under any circumstances. We observe nothing here of the peculiar tongue or irritable intestines of typhoid, to contra-indicate the use of this class of remedies. Simple evacuation of the alimentary canal will not answer, but that canal must be made the channel for copious elimination from the system.

The following case may be accepted as an instance, in which active cathartics were the chief reliance.

CASE 1.—M., a colored man, aged about 30 years, after complaining for some hours of chilliness, headache, virtigo, nausea and universal pain in the limbs, was attacked with alarming stupor, rigid contractions of the extensors of the neck, and frequent convulsions; pulse feeble and slow, tongue very *broad, soft and white.* Constipation and diminished urinary secretion. He was ordered scruple doses of submu-hydrarg every two hours, until four doses should be taken, and on failure of this to act freely as a purgative, to be followed by ℥ doses of Sulph. Mag. every two hours, again until it succeeded. After taking one dose of the sulph. mag., the result was the most copious and frequent purgation for twelve or fourteen hours. While under the cathartic influence, the general condition reäcted—the relief afforded the oppressed brain and cord was prompt and decided. The symptoms recurring in a modified form the next day, castor oil, with repeated doses of ol. terebinth, were resorted to with permanent effect—the remedies acting on both the urinary organs and alimentary canal freely. The convalescence was tedious, but favourable. I feel warranted in making the assertion, that when judiciously timed, it is difficult to use purgatives too freely, in a majority of cases of epidemic meningitis. Those should be accepted, which are prompt, energetic, and act copiously. By this means, we expect to liberate the system from the influence of a deadly poison, which is constantly acting on the vital operations of the economy, and which is the true cause of the series of morbid changes constituting the disease. They should not be administered once or twice only, but repeatedly during the progress of the case. An amelioration of symptoms will almost always follow their operation.

Diuretics.—As a means of elimination and derivation, diuretics rank only second in importance to cathartics, in the treatment of epidemic meningitis. In cases of either inflammatory, neuralgic, or ataxic meningitis, diuretics are particularly adapted. Usually in these forms of the affection, the urine is found loaded with the products of a rapidly destructive assimilation, in the form of the triple phosphates. Diuretics not only remove these from the system, but probably, in some degree, counteract those causes which produce them. As an alterative and diuretic, I found the phosphate of ammonia useful. I had long employed it, and with very satisfactory results in severe neuralgias, and always believed that it exerted some decided influence over the integral metamorphic or molecular changes of the nervous structures. It contains in abundance a material, (phosphorus) which enters largely into the nervous tissues, and possibly, by this means, supplies that element to these tissues, which is constantly passing off in the urine as waste, or effete matter. I am convinced, that in those cases where administered, the amount of triple phosphates have diminished sensibly. Hence, the impression is, that it arrests excessive disintegration of the nervous structures. It may be administered freely, in connection with vegetable diuretics, mercurials, or stimulants, as may be required. The variety of diuretic resorted to, whether vegetable or mineral, should possess active eliminative properties, and such as will carry off morbid material from the blood freely. I am satisfied that there exists a very intimate connection between the action of the kidneys, and the condition of the nervous centres, and in epidemic meningitis the correspondence may at any time be observed. As the nervous symptoms grow worse, the actions of the kidneys diminish, in some instances, almost amounting to suppression, while where these symptoms improve, the urinary action increases also. It is possible, that in some of those cases of great stupor, in this affection, a retention of urea may afford one of the embarrassing circumstances. The oil of turpentine, combined with other active diuretics, even when producing strangury, I have found useful. The idea is to maintain a consistent and active flow of urine.

Opiates and Anodynes.—In regard to the use of opiates in epidemic meningitis, or any affection of the brain, questions of great delicacy are involved. Irritation, resulting from morbid affections of nervous structures, does not differ, excepting in point of the peculiar tissue affected, from other irritations; nor is the action of anodynes, when properly timed, more dangerous than in other cases. To the contrary, the character of the case is often changed by their happy action. Some of those cases, of the ataxic form, resembling delirium tremens, are benefited by opiates in a marked degree. I apprehend, in these cases, the action of the anodyne must arrest the great wear and tear of the nervous system, incident to constant and excessive excitement. The arrest of this exhausting wear and tear of the nervous substance, becomes as important a consideration in their administration, as the relief of pain or the procuring of sleep.

Diffusible Stimulants.—The propriety of resorting to these remedies in meningitis, involve questions of not less delicacy or importance, than those connected with the use of opiates. The soft and frequently relaxed skin, flabby, white tongue, feeble and compressible pulse, extreme reductions of temperature, and vital prostration, which are such usual characteristics of epidemic meningitis, all unite in pointing to the necessity and importance of stimulants, whenever this tendency to prostration manifests itself. We should not delay them until symptoms of sinking appear. I have often given them at an early period, and when the delirium was violent, with the effect rather of allaying excitement than otherwise.

They are eminently required in what I have termed the ataxic and paralytic forms. As a diffusive stimulant, both durable and permanent in effect, a combination of carb. ammonia and camphor has been, in my hands, unequalled. This may often be united also with the phosphate of ammonia with advantage. This combination expands the pulse, without exciting its frequency, allays delirium and nervous excitement, and possibly has some share in checking the tendency to local disorganization. Brandy and milk punch are useful and often indispensable.

Warm Bath.—As a most efficient and agreeable sedative in the more active forms of the disease, where the symptoms of reäction are prominent, or the nervous excitement great and troublesome, the effects of the warm bath are prompt and decided. I have seen it allay delirium, quiet restlessness, and procure sleep, when all other means failed. The bath may be administered at an agreeable temperature frequently during the disease.

In this relationship it may be mentioned, that the application of of warm water to the head freely and frequently will often be found superior, in epidemic meningitis, to that of cold water. The effect of cold applications is often so depressing as to modify the disease unfavorably, while, in effect, the warm applications are soothing and quieting.

Counter Irritants.—I have not found the action of this class of agents so favorable as might have been anticipated. They will accomplish more on distant points of the extremities, than when applied over the immediate seat of disease. I must confess to have observed no good results from them in the latter location. In cases presenting indications of sinking or collapse, or even decided local tendencies, blisters applied to the extremities are capable of good effects.

Mercury.—Except as a cathartic, I have no confidence in the specific action of mercury in epidemic meningitis. In this affection, as in others of an analagous character, where the fibrinous materials of the blood are, in quantity or quality, at a reduced standard, mercurial action is inadmissible. The facts of experience unite to confirm this statement in the use of the drug in epidemic meningitis.

APPENDIX.—Of the great value of diffusible stimulants in this affection, the following case may be cited as an example:

CASE 2.—A female child, aged six years, was found when first seen by myself, suffering with epidemic meningitis, of an advanced stage. Great mental stupor, constant muttering delirium, excessive nervous prostration, with a cool and clammy surface, and scarcely perceptible pulse, constipation, strabismus, rigid extension of one foot and cervical muscles. Blisters were applied to extremities, and stimulants in the form of carb. ammon. camphor, milk punch, were freely given, and at short intervals. After three days, favorable indications appeared, and continued to increase, until our efforts, in this apparently hopeless case, were crowned with complete success.

ART. II.—VACCINE LYMPH ATTENUATED WITH GLYCERINE. By HENRY J. WIESEL, M. D., Cumberland, Md.

In a late number of the *Berliner Klinische Wochenschrift*, is an an article by Dr. Müller, Director of the Institute for Vaccination, Berlin, which well deserves the attention of every practitioner. He laments the fact that lymph, by reason of its scarcity, is often taken from the revaccinated and adults, a proceeding of unquestioned impropriety, and sees in this a reason for the extension of variola. The causes of the scarcity of good fresh lymph are: the refusal of parents to allow the lymph to be drawn from the pustules of their vaccinated children, under the idea that this destroys the efficacy and virtue of vaccination; the lack of proper materials, and dexterity of the Physician in collecting it; and the want of a proper method of preserving it. Lymph taken from the revaccinated, especially the adult, is more apt to carry with it into the system any dyscrasiæ that belong to the subject from which it is taken, and such lymph cannot be accounted genuine. Hence, a means of relieving this want must be essentially beneficial. This means was found by mixing the lymph with attenuated glycerine, and the result was satisfactory beyond all expectation. While the vaccine matter was increased ten and twenty-told, the resulting pustules differed in nowise, either in their career, appearance, in the quantity and quality of the contained lymph, or in the local or general phenomena from those produced by the pure lymph.

His process is as follows: He punctures several eighth day pustules, (in Germany three insertions are generally made,) and with a small new camel's hair pencil picks up the lymph as it exudes. The brush, so saturated, he places into a glass or porcelain capsule, in which is contained ten to twenty drops of chemically pure glycerine, and a like quantity of distilled water, and mixes the whole carefully. The glycerine-lymph is ready for immediate use, or may be stored away in capillary tubes.

The proportion of lymph to glycerine cannot be accurately ascertained, because the former cannot readily be weighed, but with the lymph of three pustules he has filled forty tubes, while ordinarily it would not fill more than five or six. Lymph may also be taken out of tubes, and attenuated in a similar manner; provided, of course, it be undecomposed. The saftest way is, to take fresh lymph, or such as has been contained in the tubes but a few days. Dr. Müller is at present engaged in experimenting as to the amount of attenuation that it will safely bear, but thinks that it will not bear more than twenty-fold, while ten-fold attenuation is perfectly and invariably reliable.

Among some of the advantages of the glycerine-lymph are these: the tubes are much more easily filled than with the pure lymph; a larger quantity is obtained from a small source, so that a military Surgeon might vaccinate an entire battalion with the lymph obtained from one child; in consequence of this last named reason, the lymph may be selected with greater care, a few subjects only being needed, and the danger of transplanting cachexiæ, struma, etc., is infinitely lessened; and it is less liable to decomposition, and may be sent to the most distant tropical climates.

The lymph of the genuine cow-pox may be obtained in the same way. Ordinarily lymph appears in very small quantity in the pustules of the cow, but prepared in this manner, it becomes a ready means of vaccination. The best way to fill the capillary tubes is to place them in the capsule, so that one end will be immersed in the lymph; they will fill themselves without the admission of a particle of air; then close the ends with sealing wax.

The above plan of Dr. Müller I have tried and found successful. In lieu of a capsule, I take a piece of glass an inch and a half square, and use about five drops each of glycerine and water, to the lymph of each pustule. This is a sufficient quantity, and without particular economy, to make from thirty to fifty marks. On plates, it will readily keep for two weeks or more. I have also loaded quill points with the glycerine lymph, which I have used in the usual mode. When the quill point is drawn out, the finger should be firmly pressed upon it through the skin, and retained for a few seconds, and then the surface brushed over with a pencil full of collodion. Generally there will not be the slightest show of blood, and we can feel assured that the lymph has not been washed out.

I.—THE CLIMATE AND TOPOGRAPHY OF AIKEN, SOUTH CAROLINA, IN THEIR RELATION TO PHTHISIS. By E. S. GAILLARD, M. D., Richmond, Va. *

Phthisis, that disease over which Science mourns, because of her inability to afford relief, claims its victims as remorselessly now, as it has ever done, in times past. The hecatombs that have been annually sacrificed upon the altar of this insatiable Moloch, are sadly increased by the incidents and exposures of the field.

In the treatment of this disease, all well-informed Physicians of the present day appreciate the wisdom of the Thane of Cawdor, in the well known injunction to his professional adviser, and seek in the

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*Most of this article was originally published in the C. S. Med. and Surgical Journal.

obscure, yet magic influences of climate, that balmy elixir which Pharmacy has, so far, failed to reveal.

Until comparatively recent years, the influences and adaptation of climate and topography, in their relations to Phthisis, have never received the adequate investigation of competent observers. Patients have been sent indifferently and indiscriminately to the dry, cold atmosphere of Spitzbergen, or to the warm, moist air of Bermuda and Jamaica; to the temperate climate of Madeira, Florida and the Mediterranean, or to the dry and warm atmosphere of Cairo and Sierra Leone.

Independently of the trying circumstances which the results of the late war have developed, it is well that this subject should receive thorough attention, but now, that many consumptives are by poverty denied access to their usual resorts, it is especially necessary that some proper and appropriate information be given for their physical welfare.

It is on this account, and also for the general welfare of this class of patients in all sections, that the climate and topography of Aiken, South Carolina, are brought to the attention and consideration of the Profession.

Aiken is situated in the Northwestern part of Barnwell District, South Carolina, and quite near the dividing line, between Barnwell and Edgefield Districts—more accurately described, its latitude is 33 deg. 32 sec. North, and its longitude 81 deg. 34 sec. West.

It is situated on the South Carolina railroad, one hundred and twenty miles from Charleston, S. C., and sixteen miles from Augusta, Georgia.

The village is built near the centre of an elevated plateau, or table land, possessing an area of about twenty square miles. The elevation of this plateau is 565 feet above the level of the sea, and about 300 feet above the Savannah river, at its nearest point.

The country immediately adjacent is drained by Shaw's creek and Horse creek, with several smaller streams, emptying some into the Savannah, and some into the Edisto river; this drainage is thorough and complete.

The character of the soil is sandy, with a subsoil of red clay; the stratum of superficial soil being from six to ten feet deep, unless at the immediate site of the village, where the substratum of clay crops out. The sand is of white variety, silex entering largely into its composition. This soil is exceedingly dry, water not being found at a less distance than from eighty to one hundred and twenty-five feet below the surface.

The water is of a superior character, being transparently clear, with a temperature varying from 62° to 65° Fahrenheit; it is generally impregnated with the salts of iron and magnesia, but not sufficiently so to affect its taste or to render it deleterious to the invalid.

The annual rain fall at this point, as tested by the rain-guage, is usually about thirty-seven inches, or a monthly average of three inches; the heaviest uniform fall being in the months of June, July and August, and the smallest fall in Autumn.

The earliest frost usually occurs from the 10th to the 15th of November, and the latest from the 1st to the 15th of April; the average duration of the period without frost being from two hundred to two hundred and twenty-five days, or about two-thirds of the year. This fact is deserving of special attention.

The mean annual temperature is from 50 to 54° Fahrenheit; the mean temperature of the Winter months being from 42 to 46° F.; that of the Spring months 58° F.; that of the Summer months 77° F., and that of Autumn 62° F. Attention is directed to the very gradual and equable variation in these temperatures, there being a marked absence of sudden changes, and the variations in temperature being strictly in accordance with the respective seasons.

The extremes in temperature for one year (which is a fair type of the seasons of other years) are as follows: January, 60–40° Fah.; February, 76–35° F.; March, 82–24° F.; April, 73–28° F.; May, 86–50° F.; June, 92–66° F.; July, 86–64° F.; August, 92–69° F.; September, 90–53° F.; October, 78–40° F.; November, 83–19° December, 74–31° F.

The prevailing winds are from the South and Southwest.

The dew point is invariably low. This hygrometrical condition of the atmosphere is here characteristic. The ordinary long moss (Tilandsia) of the Gulf States, as has been frequently tried by experiment, will not grow here. The Cryptogamous plants are feebly represented, and those only grow that are usually found flourishing in dry atmospheres. Very few lichens are to be seen; on the tops of the highest and dryest hills a few specimens are to be found. The grape flourishes in great profusion and abundance, and it is very unusual for the atmosphere to be sufficiently damp to cause any injury to this delicate fruit.

The forest growth is of the dwarf oak and the yellow pine; the atmosphere is decidedly terebinthinate.

Endemics are unknown here, and epidemics rare. The country is entirely free from malarial diseases.

This village, for a series of years, has been the resort of consumptives from many sections of the United States, and their testimony, in regard to the climate, is very satisfactory.

The difference in this climate and that of the seaboard is so marked, that many persons suffering from pulmonary trouble have, after residing at Aiken, been unable, with impunity, to return to their homes upon the coast.

The climate and water, together, have produced very conspicuous results in the health of those suffering from gastric and intestinal complications.

Having thus given these physical and meteorological facts, it is proper that a few reasons should be furnished, for considering this village as peculiarly adapted as the home or retreat of the consumptive.

Bernard, Ingenheuze, Cruikshank and others have satisfactorily demonstrated the important fact that the skin is, physiologically, the chief supplement in respiration. Becquerel, Rodier, Todd, and other observers, have shown that this supplementary action of the skin is peculiarly and vitally important in Phthisis; corroborating views, long since expressed by Laënnec, and a few years since interestingly brought to the notice of the Profession by Dr. Lee, of London.

Sir James Clark, Ancell and others similarly interested, have demonstrated the interesting truth, that the supplementary action of the skin is in an indirect ratio with the hygrometric condition of the atmosphere. Edwards has confirmed these experiments, and states that in a moist atmosphere, the supplementary action of the skin is at its minimum. (Lee.)

Phillips, Tulloch and Forry testify, that it is not only true that the action of the skin is least in moist atmospheres, but that this fact is usually manifested, irrespective of atmospheric temperature.

Interesting tables have been prepared by Fourcault, and also by Ancell, showing that where dryness of atmosphere exists, irrespective of temperature, there is a marked increase in cutaneous transpiration, and that where this condition is found, Phthisis is seldom observed.

It is a familiar fact with the Profession, that in the dry and hot atmospheres of the Cape of Good Hope, Egypt, and Sierra Leone, Phthisis is exceedingly rare; that it is equally rare in the temperate air of Australia, the Mediterranean coast, Madeira, Florida, and the slopes of the Pacific, whilst in the dry, cold regions of Iceland, Greenland, Sweden, etc., this disease is comparatively unknown

The happy effect of dry atmospheres are conspicuously manifested in the South of Spain, France and Italy, (in sections of these countries unvisited by the Mistral. found so frequently prevailing,) and thoughout the entire extent of this isothermal line of Humboldt.

Dr. Hay, who accompanied Kane's Arctic Expedition, states that among the Esquimaux tuberculosis and all forms of scrofula were unknown. Instances, though very few, have since been given of scrofula having been seen in this tribe.

It will be observed, that at all of these places, dryness is the prevailing and distinguishing characteristic of the atmosphere.

In direct contrast with these facts, it is well known to all who have investigated this subject, that moist atmostpheres, irrespective of temperature, have usually a baneful effect in most cases of Phthisis; this is especially true in those cases representing the second and third stages of the disease. The statistics of Nova Scotia, Holland, England and Jamaica have long since demonstrated this truth.

In analyzing all oral and written testimony with reference to Phthisis, in its relation to climate and topography, the whole subject resolves itself into a few well marked and easily recognized divisions.

There is the dry and cold climate, which is usually both prophylactic and curative in its influences. Spitzbergen, Sweden and Minnesota, etc., may be accepted as representatives of this class.

The dry and temperate climate found on the Pacific slopes, in Middle Florida, at Aiken, South Carolina, Boulogne, Nice, St. Remo, Dieppe and Southern Spain. This air is also prophylactic and curative, and is especially adapted to the largest class of cases observed.

The dry and warm climate, as found at Hyeres, Menton, Naples, etc.; the only practical difference between this air and that to which allusion has last been made, is that a dry and warm atmosphere is frequently found to be too exciting.

The dry and hot climate peculiar to Cairo, Algiers and Sierra Leone. This air is desirable where stimulation is required and is well borne.

The moist and cold climate—that of Wales, Scotland, Nova Scotia, and New England; provocative of the disease and prejudicial in its influences.

The moist and temperate climate, as found on the Isle of Wight, at Pau, Pisa and Eastern Florida, and in Holland. This air is occasionally beneficial, though not in so marked a degree as that which is dry and temperate; it is not so often applicable, and being a mixed air from sea and land, it is objectionable.

The moist and warm climate—Bermuda, Jamaica, Madeira and Sicily.

The moist and hot climate, as found in Cuba and most of the West India Islands. The air at most of the localities specified in the two last divisions, is sometimes beneficial in incipient cases of Phthisis, but is almost invariably baneful, if not fatal, to those in the last stages of the disease.

It will be observed, in this summary, that no air is more frequently appropriate and beneficial than that of Aiken, South Carolina, resembling, as it does, that of Nice and St. Remo, which are regarded at the present time with more favour, perhaps, than any other sections of Europe.

The elevation of the country at and around Aiken is also a material advantage to consumptives, as it is a well known fact, that respiration, in its depth and volume, is in a direct ratio with atmospheric agitation. Edwards and others have made several interesting experiments for the establishment of this truth. (Lee.)

Aiken possesses also a virtue in the important fact, that the consumptive residing there can, with impunity, exercise in the open air, throughout the year. M. M. Lombard, L. Espine, Dujat, and others, have made interesting tables, showing the disastrous results invariably ensuing, when consumptives reside in those sections, requiring prolonged residence within doors. The researches of these observers corroborate the position, first advanced by M. Carriere, that hybernation and mortality in Phthisis are in a direct ratio. The soil at this place is particularly well adapted for safe exercise throughout the Winter.

The important physiological fact being accepted, that the skin is, in its action, supplementary to the lungs, that there is, so to speak, a cutaneous, as well as a pulmonic respiration, it is evident, when, from disease, there is a deficiency or inefficiency in the action of the lungs, that it is vitally necessary to develop and stimulate the functions of the skin. Nothing so happily or successfully accomplishes this object as residence and active exercise in a dry, equable and temperate climate. It should be remembered, that the beneficial effect of climate, in arresting cases of consumption, is par icuiarly successful, if the disease is in its incipient stage.

There are eligible spots in and around this village, which can be advantageously purchased, and the facilities for building are all that could be desired. The soil is especially adapted to gardening and horticulture, and with very little care, an abundant supply of vegetables and very superior fruit may be obtained. The grape and peach orchards in this vicinity are especially rich and valuable.

The distinguishing characteristics of the Aiken climate then, are its peculiar dryness of the atmosphere, its freedom from sudden and violent atmospheric changes, an absence of frost for two-thirds of the year, its freedom from endemics and malarial diseases, and the general prevalence of soft Southern and Southwestern breezes.

These important and interesting facts in regard to this locality, in connection with its dry and porous soil, rendering exercise at all times practicable; its excellent water and abundant fruit; cheerful and refined society; its remarkable elevation; its facility of access and removal from all crowded centres of population, with their irregular hours and inseparable excitements, render Aiken especially adapted for the home of the consumptive.*

ECLECTIC DEPARTMENT.

I.—LECTURES ON THE RECENT ADVANCES OF OUR KNOWLEDGE IN THE DIAGNOSIS AND TREATMENT OF FUNCTIONAL AFFECTIONS.

By C. E. BROWN SEQUARD, M. D., F. R. S., &c.

The principal objects of these lectures, are to point out the practical value of the great advances recently made in our knowledge of the normal and morbid states of the vital properties and functions of the various parts of the nervous system, and to show what progress we owe to experiments on animals, and to clinical researches on the therapeutic effects of many remedies, old and new. Before entering, however, into the study of our knowledge of the diagnosis and treatment of each type of the functional nervous affections, I propose to examine, in this lecture, some of the general principles of symptomatology, of diagnosis, and of treatment, in almost all the varieties of these affections.

One of the most important of the recent advances in physiology and pathology, consists in the demonstration that the nervous conductors, of the various kinds of sensitive impressions, and of the reflex phenomena, and also for the transmission of nervous force to muscles, blood vessels, etc., are absolutely distinct one from the others, as regards their functions. Leaving aside the nerve-fibres of the brain, some of which have functions, altogether different from those of other parts of the nervous system, I have ascertained that, besides the four distinct kinds of nerve-fibres, of the higher senses, there are at least eleven distinct kinds of nerve-fibres in the spinal cord, and in the cranial and other nerves. The following table shows what are the distinct functions of these eleven kinds of nerve-fibres.† They are—

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* It was contemplated, by the proper authorities, of the late Confederate Government, to establish at Aiken a Hospital for diseases of the chest, and the facts, herein stated, were then collected.

† I have shown that the nerve-fibres serving to sensations of touch, of tickling, of pain, and of temperature, are not only completely distinct, one from the others,

1st. Conductors of impressions of touch.
2d. " " tickling.
3d. " " pain.
4th. " " temperature.
5th. " " contraction (muscular sense).
6th. Incito-motor conductors.
7th. Incito-nutritive and secretory conductors.
8th. Voluntary motor conductors.
9th. Involuntary motor conductors.
10th. Vaso-motor conductors.
11th. Nutritive and secretory conductors.

I hardly need to say, that the number of distinct nerve-fibres, is probably much greater than is shown by this table; but the demonstration of the distinction of other kinds of nerve-fibres (such as those serving to sensations of hunger, thirst, pressure, or to voluptuous sensations, etc.,) is not yet sufficient.

Almost all the symptoms of functional (and I might say, also, of organic) nervous affections, take place through one or other of three modes of alteration of the properties and functions of the fifteen kinds of conductors above named. Those three modes consist in: 1st, a diminution or loss of power; 2d, an increase of power; 3rd, a morbid state of producing a great variety of phenomena. In the nine kinds of conductors serving for the transmission of sensitive impressions, the first of these three modes of alteration constitutes *anæsthesia*, the second, *hyperæthesia*, and the third is the cause of *morbid sensations*, (including the so-called *referred sensations*).

I will not enter into details here, about the kinds of nerve-fibres, which I call incito-motor, incito, nutritive or secretory; or about those which I simply name nutritive or secretory; but as it would be impossible to understand the future lectures of this course, without some knowledge of the properties and functions of these nerves, I

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but that, after having entered the spinal cord, as parts of the posterior roots of the spinal nerves, and after a complete decussation between the fibres of the two sides of the body in that nervous centre, they form in it distinct groups or columns of conductors; so that an alteration, limited to a small part of the spinal cord, may strike either the column for touch, or that for tickling, or one of the other two kinds of conductors of sensitive impressions. I have shown, also, that the conductors for the muscular sense, differ from the conductors just spoken of, in this respect, that they do not decussate in the spinal cord, but that they form, also, a distinct column, in each lateral half of that organ. (See Journal de la Physiologie de l'Homme, etc., No. 24, vol. vi., pp. 610-19 and 645.

will give, as briefly as possible, a few notions concerning their physiological and pathological history.

1st. *Incito-motor nerves.*—These are the well known excito-motor nerves of Marshall Hall. A great many facts prove that they are absolutely distinct from the sensitive nerves. All the reflex movements of the muscles of organic or animal life (including the excretory ducts of glands, the blood vessels, etc.) originate through an irritation transmitted by these incito-motor nerves.

2dly. *Nutritive and secretory nerves, and incito-nutritive and secretory nerves.*—That more appropriate names should be given to these nerves, I will not deny; but so long as their real mode of action remains somewhat doubtful, I think it is better to call them by names which only imply what we positively know of them—i. e., that they are agents of modification, of secretion and nutrition. The *secretory and nutritive nerves* are in many respects the antagonists of the *vaso-motor nerves.* While these last nerves, when put in action produce a contraction of blood vessels, and all the phenomena which I have shown to ensue from that contraction (such as a diminution in the quantity of blood, a diminution of sensibility, and other vital properties and of secretions),* the nutritive and secretory nerves, on the contrary, when put in action, occasion a dilatation of blood vessels, and all the phenomena that ensue from it, as shown first by experiments of Czermak and of Cl. Bernard. I proposed long ago (in my lectures at the College of Surgeons in 1858)† an explanation of the action of these nerves, which becomes more and probable, with the frequent discovery of new facts concerning these nerves. The explanation is, that the secretory and nutritive nerve-fibres act upon the tissues so as to increase their chemical interchanges with the blood, and that, in consequence of this increase of chemical interchange, blood is more attracted to the part, and, as an effect of this greater afflux of blood, there is a dilatation of blood-vessels. In many of the future lectures, I will mention phenomena due to this dilatation of blood-vessels, from an irritation of this peculiar kind of nerves. I will only add now, to what I have already said on this subject, that it is chiefly by a reflex action, that these nerves produce their peculiar effects. The redness, the congestion of parts attacked with neuralgia or of neighboring parts, the secretion of tears when the eye is irritated, or the skin of the face pinched, the secretion of mucous from the nose, or from laryngeal, tracheal or bronchial mucous membranes, or the diarrhœa produced by cold, and an immense number of facts, in which there is a congestion, or a secretion, as a result of an irritation of cutaneous or other nerve fibres, are all effects of the peculiar influence exerted, by secretory and nutritive nerve fibres, on glands and other tissues.

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* See Course of Lectures on the Physiology and Pathology of the Central Nervous System. 1860, p. 142.

† See my Course of Lectures above quoted, p. 143.

These nutritive and secretory nerve-fibres are, as I will try to prove in future lectures, the agents of production of inflammation, suppuration, and ulceration, by a reflex action. They are the channels of production of meningitis, of encephalitis or myelitis, when those inflammations are due to cold, to a burn, or to a visceral affection. They also have a great share in the production of many functional nervous affections, and particularly tetanus. Besides, through the agency of these nerves, much may be done for the treatment of nervous affections, as I will show hereafter.

The incito-secretory and nutritive nerve fibres are the incident or centripetal nerve fibres which, by a reflex influence, act upon the centrifugal secretory and nutritive nerve fibres. Their distinct existence is not fully demonstrated, but many facts render it extremely probable.

The causes of functional nervous affections can be divided into several groups. 1st. An irritation by worms, by teething or decayed teeth, by cold, by a burn, a wound, an inflammation, a neuralgia, etc., of centripetal nerve fibres (the incito-motor, the incito-nutritive, and some others). 2d. An alteration in the quantity or the quality of blood. 3d. Both the two preceding kinds of causes coëxisting together, as in cases of typhus fever, of variola, of diphtheria, of uræmia from disease of the kidneys, etc

I will not now insist on the mode of action of these causes, as that will be better done in treating of each nervous affection separately; but there are a few general remarks, which will be in their proper place, in this introductory lecture. There are two general rules which particularly deserve attention:

1st. *The same peripheric cause of irritation acting on the same centripetal nerve may produce the greatest variety of effects, including every functional nervous affection or disorder.* This is well illustrated by the effects on the eye of a neuralgia of the infra or supra-orbitalis nerves. There are cases showing: first, spasm of the sphincter of the pupil; second, mydriasis; third, spasm of the orbicularis palpebræ; fourth, paralysis of the orbicularis; fifth, paralysis or spasm of one or several of the muscles of the ocular globe; sixth, photophobia; seventh, amblyopia or amaurosis; eighth, congestion or inflammation of the conjunctiva, or of other parts of the eye; ninth, diminution or increase of the secretions of the lachrymal and other glands; tenth, a cataract; eleventh, a glaucoma.

Other instances, though less striking, might be adduced. I will only mention what we know as regards the effects of cold air on persons coming out of a theatre. One may be attacked with a sore throat, a second with ophthalmia, a third with enteritis, a fourth with a nephritis, and many others with any other visceral inflammation; while one may be attacked with a facial paralysis, and others with almost every other partial paralysis, or with chorea, with contractura, with meningitis, or an inflammation of some part of the nervous centres. It is true, that here it is not the same part of the skin which is acted upon by the sudden lowering of the temperature; in most of such cases, however, it is the front part of the chest and the neck that are subjected to the influence of the cold air.

It is probable, that the great variety of phenomena following an irritation of centripetal nerve fibres depends on differences of excitability of some parts of the nervous centres, in different individuals. I have examined carefully, on a large number of men, the effects of tickling the sole of the foot, and found that these phenomena differed considerably on different individuals. In one, laughter predominated; in another, involuntary screaming, or shedding of tears, or jerks either in the irritated limb or in both lower limbs, or a general trembling, or a spasm of the diaphragm, or an almost tetanic rigidity of the irritated limb. I need not add, that in some individuals there was hardly any effect produced when, being prepared for the irritation, they fought against its influence—a fact which, with many others, shows that, by an effort of the will we sometimes can, at least in a certain measure, prevent the production of reflex phenomena.

I will not say more at present on this subject, leaving for other lectures the demonstration that it is through a real reflex action (i. e., through a mechanism similar to that of reflex movements) that the morbid effects of an irritation of centripetal nerve fibres take place.*

2d. *The degree of excitability of the different parts of the nervous system may increase or decrease considerably in the same person under the influence of various causes.* This proposition is of so great an importance in the diagnosis and treatment of nervous affections, that it is only by the light it throws on many otherwise obscure cases, that we are enabled to recognize their nature, and to apply the proper treatment. Many parts of the nervous system that are completely, or almost completely, inexcitable, in a healthy condition, become excitable, and sometimes in a wonderful degree, under the influence of several morbid causes. Amongst these parts, I will point out the grey matter of the spinal cord, and the nerves of the tendons, aponeuroses, dura mater, periosteum, bowels, bladder, kidneys, and some other viscera. Many causes, very different one from the other, may increase the excitability of the various parts of the nervous system. I will mention here only the principal of these causes: 1st. I have found that muscles, nerves, and the spinal cord, become more excitable when laid bare, and particularly when the air in contact with them is richer in oxygen than the ordinary atmospheric air.* 2d. A congestion or an inflammation will increase the excitability of nervous tissues everywhere, but nowhere so markedly as in the grey matter, and some parts of the white columns of the spinal cord, which, in consequence of that increase, will become able to produce referred sensations of pain, of cold or heat, of tickling, etc., and phenomena due to an irritation of motor, vaso-motor, and nutritive nerves. 3d. An afflux of blood, such as occurs merely by gravitation, or after a section or a paralysis of the sympathetic nerve or a lesion of the spinal cord, the medulla oblongata, or the base of the brain, will also increase the excitability of peripheric nerves in the parts where this afflux takes place. 4th. Certain remedies or poisons (strychnine particularly) will increase the reflex excitability of the spinal cord to a wonderful degree; while others, such as atropine, chloroform, etc, will diminish it considerably. 5th. Certain diseases, such as tetanus and hydrophobia, will increase extremely the reflex excitability of some parts of the cerebro-spinal axis. 6th. A great loss of blood, anæmia, chlorosis, will also increase the reflex excitability of the nervous centres.

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* In one of the ensuing lectures I will explain why I do not admit the views so ably propounded by Prof. Lister and Dr. Handfield Jones on the so-called "inhibitory" nerves.

The increase of reflex excitability in cases of extreme debility, as in old age, or after a loss of blood, or other causes of insufficient nutrition, would be very difficult to understand if we did not know, that the reflex excitability of the spinal cord can be increased under the influence of certain substances, (strychnine principally) when no blood at all remains in the blood-vessels of that nervous centre, as proved, beyond the possibility of doubt, by Messrs. Martin-Magron and Buisson. The excitability of sensitive nerves may also be increased when the quantity of blood is much diminished, as we often observe in fingers that have been exposed to cold air or cold water. It seems, from a review of all the facts I know bearing on this point, that certain substances contained in blood altered in quantity or quality, will act on the excitability of nerve fibres in the nervous centres, or in the nervous trunks and branches, so as either to increase it, as is done by strychnine (on the grey matter,) and oxygen (everywhere), or to decrease it, as is done by carbonic acid, atropine, chloroform, etc.

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* See Proceedings of the Royal Society. vol. viii. 1857. p. 598; and Journal de la Physiol. de l'Homme &c., vol i. 1858, p. 617.

To conclude what I wish now to say on the excitability of the nerves, I will only mention—first, that I have ascertained that the excitability of the same nerve varies in different parts of its length, and to such a degree that in some parts the excitability seems nil, or is very slight, while in other parts it is considerable; second, that I have shown by positive experiments that the excitability of muscles, of nerves, and of the spinal cord, may be very much increased, while the *force* developed by the action of those parts is very small. For instance, atrophied muscles, unable to contract with half the force shown by healthy muscles, will, however, contract under the influence of an excitation that will produce no effect on healthy muscles.

I will say only a few more words on the causes of functional nervous affections. The important discussions between Virchow, Spiess, and others, on the share of the nervous system in the causation of the various morbid alterations of tissues and organs, have been very useful in bringing forward many interesting facts; but the exclusiveness of the two opposite schools, at the head of which are the eminent men I have just named, has thrown a great deal of obscurity on questions which, considered with less partiality, might have been solved easily. It is certainly true, as maintained by Virchow,* that nutrition and secretion, normal and abnormal, can be carried on without the intervention of the nervous system; but, this does not at all prove that the nervous system cannot interfere, for good or for evil, in the nutrition and secretion in the various tissues and organs. For instance, there is no doubt, whatever, that an inflammation, followed, or not, by suppuration and ulceration, can take place without any intervention of the nervous system; but, as will be proved in one of the ensuing lectures, there is no doubt also that inflammations not only can be, but very frequently are, produced by a nervous agency. Indeed, facts are extremely numerous that establish clearly—1st, that normal nutrition and secretion do not depend, essentially, on any interference by the nervous system, and that all morbid changes in these fundamental organic functions can take place without any nervous influence; 2d, that the nervous system may, and almost constantly does, influence nutrition and secretion, and that it frequently produces, or helps to produce, a great variety of alterations of these two fundamental functions.

Not only can an excitation of the same nerve produce effects in the different parts of the nervous centres, in one or other of the viscera, or in distant nerves, or muscles, or bones, etc., but it can also produce, in the same part of the nervous centres, in the same viscus, in the same muscle, etc., different kinds of alteration.—Why is there such a variety of alterations produced in one and the same part by an excitation which varies only in intensity? To answer this question, I must go beyond the limits of the subject-matter of this course of lectures, and cast a glance on the mode of production of morbid affections of the various tissues and organs. Physiology, morbid anatomy, and clinical observation, clearly point out, that all nervous affections, (organic and functional,) as well as affections of any other part of the body, owe their production to three different causes.

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*See Dr. Chance's excellent translation of Virchow's "Cellular Pathology," Lect. XIV. London, 1860.

1st. A special inherent tendency, (inherited or not,) of the elementary parts of the tissues to become altered in one or in another way.

2d. The production, or introduction in the blood, of those materials that are necessary for the formation of morbid growth, or able, like poisons, to cause alterations of nutrition or secretion.

3d. An influence of an excitation from outside, acting with or without the intervention of the nervous system, or a purely nervous influence starting from a peripheric or a central part of the nervous system.

If we keep in mind the truth, that these three causes may exist together, and in various degrees, we can easily understand how the same excitation of the same nerve may produce, in the same distant part, different kinds of alteration of nutrition. It is so that an irritation from a wounded nerve will produce either tetanus, or cholera, or catalepsy, or epilepsy, or delirium, etc., and by a reflex action on a peripheric part, muscular wasting or trembling, a contractura, a neuralgia, etc.

I now pass to the diagnosis of functional nervous affections, on which subject I will only point out, in parallel columns, the principal distinctive features of these affections, compared with organic nervous diseases.

Characters of functional nervous affections.	*Characters of organic nervous diseases.*
1st. The principal causes are: an alteration of the blood, and an irritation of a part of an incident or centripetal nerve, by a neuralgia, by worms, by teething or decayed teeth, by a wound, a burn, &c.	1st. One of the principal causes is a special tendency, (inherited or not,) to inflammation, to alterations of the blood-vessels, or to the formation of morbid growths.

2d. Great variability in the intensity of the symptoms, and regular or irregular recurrence of attacks, with intervals of almost perfect health between these attacks.	2d. Persistence of the principal symptoms, with slow variations in their intensity.
3d. A sudden or rapid cure or improvement is not rare.	3d. A sudden or almost sudden cure is impossible, and a rapid improvement is exceedingly rare.
4th. Certain symptoms—such as a sensation of pricking, of formication, of burning heat, of icy cold, and other symptoms of irritation of conductors of sensitive impressions, and also alterations of nutrition and secretion cf the skin and of mucous membranes and glands, (bladder, kidneys, etc.,) are extremely rare, except in a few of these affections, (neuralgia, affections due to alterations of the blood, etc.)	4th. Most of the symptoms due to the irritation of conductors of sensitive impressions and of nutritive and secretory conductors, are extremely frequent in inflammation, and even congestion of the nervous centres or their meninges, and they are not rare in many other organic nervous diseases.
5th. The temperature of affected parts generally low.	5th. The temperature of affected parts generally high.
6th. The sphincters of the bladder and rectum usually normal.	6th. The sphincters of the bladder and rectum often attacked with spasm or paralysis.
7th. An aura, felt or unfelt, very frequently exists in some forms or periods of epilepsy, of hysteria, of catalepsy, of hydrophobia, etc.	7th. An aura, felt or unfelt, exists only when the organic disease has caused a functional nervous affection.
8th. To remove the cause is an essential part of the treatment.	8th. To remove the cause is often impossible, and, when possible, of less importance than the direct treatment of the structural alterations.

Other means of diagnosis between organic and functional nervous affection have been found within the last few years. As I shall have to speak of them at some length, when I treat particularly of certain functional disorders, I will merely say here, that the most interesting amongst them are—1st. The effects of pressure on nerves, as employed by Dr. A. C. Pinel, Dr. Aug. Waller, and Messrs. Bastien and Vulpian. 2d. The effects of tickling, and the degree and extent of reflex movements. 3d. The influence of galvanic applications. 4th. The effects of strychnine as a test for congestion in the spinal cord and its meninges. 5th. The existence of anæsthesia limited to a small spot. 6th. The alteration in the speed of transmission of sensitive impressions. 7th. The existence of an unfelt aura.

Treatment of functional nervous affection.—Great advances in the treatment of neuroses have been made within the last ten or fifteen years, particularly as regards a more rational or better appropriated employment of remedies and other modes of treatment than by the discovery of new remedies. I may say that I will speak of the rejection of certain modes of treatment, or of their limitation to fewer cases, as a real advance in therapeutics. I will divide this subject into eleven parts, as follows:

I. Means of suppressing the causes, or of diminishing their intensity.

II. Means of diminishing the reflex excitability of the nervous centres.

III. Moral treatment.

IV. Special modes of treatment in periodical affections.

V. Treatment through irritation of the sensitive and other incipient nerves.

VI. Physical and mechanical means of treatment.

VII. Complex modes of treatment, combining the two processes of irritation of incident nerves, and a modification of the blood.

VIII. Change of the composition of the blood, and elimination of morbid and other poisons.

IX. Special use of anæsthetics.

X. Treatment by remedies acting directly on the nervous system, or on the unstriped muscular fibres.

XI. Treatment by tonics and other remedies.

(TO BE CONTINUED.)

II. OZONE: ITS RELATIONS TO HEALTH AND DISEASE. An Essay which received the Fiske Fund Premium June, 1861. By E. S. GAILLARD, M. D., of Richmond, Va.

(As the result of repeated requests, from the members of the Profession, this Essay is herein published.—ED.)

This body, once unknown and long neglected, but now commanding the enthusiasm of all engaged in the investigation of its properties, is yet to form a most important chapter in every volume of medical literature. When more patient and protracted analysis shall bring the sure reward of a still better comprehension, it will be prized as "the pillar of fire to give light" through the tedious wilderness of obscure and discouraging theory. But the nature of such a paper as the present forbids the indulgence of prediction, when the future alone can verify convictions which would induce the spirit of prophecy. With brevity and conciseness, therefore, we will, without preface, consider the subject contemplated.

It is now generally conceded that Van Marum was the first to call the attention of scientific men to the existence of some anomalous body, which further investigations proved to be that of which we now write. This philosopher made his first experiments in 1785, but the results were too unsatisfactory to secure general attention. He had charge of the large electrical machine in Taylor's Museum, and with this he excited sparks in a tube filled with oxygen; after the disengagement of 5,000 sparks, the gas had acquired a very strong and characteristic odor. M Schönbein, of Bâle, became interested in these experiments, and determined to fully investigate the subject. His researches were actively made, and promptly given to the public. From this period the true history of the subject begins—that is, from 1842, two years after Schönbein's discovery.

To M. Schönbein really belongs the credit of having introduced this subject to the attention of the scientific in and out of the medical Profession. A general interest was at once awakened, and we find monographs almost simultaneously published in different parts of Europe. Its composition, nature and properties formed subjects for excited controversies, and we find such distinguished men as Marignac, De la Rive, Arago, Becquerel, Liebig, Bergmann, Berzelius, Osann and others, striving for the position of teachers and expounders of this novel agent. On account of its peculiar and strong odor, it received from M. Schönbein the appropriate name it now bears, ozone, from a Greek verb, signifying to yield an odor. Although this name reveals nothing of the composition of this body, and most investigators have attempted to make a more suggestive substitute, yet it has been retained, both for its appropriateness and as a merited tribute to him who gave it. Ozone was, for a long time, claimed as a binoxide, or peroxide of hydrogen; it was written in chemical abbreviation, HO^2, thus indicating the condition of the binoxide to be the most invariable. Schönbein regarded it as a regular constituent of the atmosphere, and the condition of the binoxide as that most uniformly manifested; this view was, for a time, doubted, but is now regarded as most generally correct. According to M. Schnepf, this fact was first promulgated in 1849, about seventeen years after its properties were generally investigated. After so many years of patient examination, it is at least most probable that this view is scientifically correct. Schönbein states that there is formed, from the same influences, a small proportion of nitric acid. The formation of nitric acid, as thus stated, was advanced by Cavendish as early as 1784. and fully proved, after that time, by Bergmann and others. Liebig investigated this fact in 1826, M. Bousingault in 1839, and M. Barral in 1852. Heller has attempted to prove the constant existence of nitric acid in the atmosphere, and, for this purpose, presented a memoir to the Academy of Sciences at Vienna. The report of the Academy was not entirely favorable, but he is sustained by many and prominent authorities, who not only differ with the Vienna Academy, but unanimously certify, in addition to this, that there is formed, at the same time, ozone and ammonia, &c., as claimed by M. Schönbein:—"Ma'gré l'autorité, de cette société savante, il reste néanmoins acquis à la science, par suite des travaux de Cavendish, de Bergmann, de M. Liebig, de MM. Heller, Boussingault et Barral, que l électricité contenue dans l air atmospherique, agit sur les deux éléments fondamentaux de ce fluide, pour donner naissance à l'ozone, et sans doute en même temps aussi, à une proportion tree-faible d acide nitrique et d ammoniaque," &c. This claim, then, of Schönbein, is fully admitted; for the testimony of the authorities quoted, whilst supporting the claim of M. Heller as to the constant existence of nitric acid in the atmosphere, fully proves that the same causes produce also ozone. The absolute and uniform composition of ozone has been, among chemists and philosophers, the subject of repeated analysis, and, until recently, of constant controversy. Schönbein claimed it as a binoxide, or peroxide of hydrogen; Faraday denied this, and considered ozone as "oxygen in an isomeric state," or as a "simple modification of oxygen, in an allotropic condition of that body." Mr. Williamson, of the Royal Society of London, pronounced, that according as ozone is produced by a galvanic battery, developed by the electric spark, or brought forth by the action of air on phosphorus, it is a hyperoxide of hydrogen and azotic acid, or a mixture of the two. Berzelius opposed this view, and contended to prove that Faraday was correct.

At this time a series of experiments were instituted, by MM. Marignac and De la Rive, two savans of Geneva, for the purpose of demonstrating the truth of what had been so frequently advanced—that ozone is only oxygen, in the peculiar state given to it by electricity. These experiments were commenced a short time after the publication, by MM. Frémy and Becquerel, of their original views, in their joint work "Electro-chemical Researches on the Properties of Electrified Bodies." It is to MM. Frémy and Becquerel that the scientific world is indebted for all that is original in this view—that ozone is but oxygen in the characteristic state induced by its subjection to electricity. This view, original with them, has been brought prominently before the public by MM. Marignac and De la Rive. It was apparently demonstrated, by MM. Frémy and Becquerel, that the "ozonoscopes," (or tests for ozone,) would not be affected unless the oxygen be electrified. In the presence of oxygen, or electricity singly, they remained unchanged; but as soon as the oxygen was electrified, ozone, it appeared, was clearly manifested. This fact was proved, it was thought, by a few simple and ingenious experiments. Before alluding to experiments of any kind, however, it is proper to briefly explain the nature and composition of the "ozonoscope." This description will be general, as well as brief, and all the details and important suggestions connected with them will be postponed for that portion of the essay devoted to their consideration.

An ozonoscope is a slip of paper or cloth, on which has been spread a compound of gelatinized starch and the iodide of potassium. Ozone, playing the part of an acid, unites with the potassium, and, in forming potassa, liberates a certain proportion of free iodine; the iodine, thus liberated, unites with a portion of starch, forming the characteristic blue iodide of starch. The depth of this blue demonstrates the amount of ozone present, or, in the phraseology commonly used, chromatic intensity becomes the measure of ozonic quantity. It is not necessary to enter farther into the description of the ozonoscopes to insure a full understanding of the chemical changes taking place, when they are experimentally used; farther details will therefore be postponed until they form the actual subject of consideration.

MM. Frémy and E. Becquerel, in their experiments, placed one of these ozonoscopes in a glass tube which was filled with oxygen and then hermetically sealed. By means of metallic bulbs at each end of this tube, electric sparks were made to leap, (from the point of an ordinary conductor,) across this volume of oxygen. The ozonoscope was immediately made blue. It was now necessary to prove that this result was not caused by the decomposition of the iodide of potassium, (on the ozonoscope,) by means of the electricity used. The ozonoscope, for this purpose, was then placed in a similar tube, under similar precautions, and the tube, after being filled with hydrogen gas, was hermetically sealed. The same electrical agents were then applied to it. The ozonoscope remained unchanged. To succeed in this last experiment, the authors advise that only the purest hydrogen gas should be used, and that the ozonoscope shall be freed from the atmospheric air it contains. If the hydrogen is not absolutely pure, and the ozonoscope thus prepared, the experiment fails; the least trace of oxygen, in the hydrogen or in the ozonoscope, will be sufficient to produce this failure. The oxygen, if thus present in the feeblest proportions, becomes electrified, and, reäcting on the ozonoscope, generates the blue color, which is the unanswerable indication of failure in this hydrogen experiment. These two experiments would apparently show that the ozonoscope, in the experiment with oxygen, is only made blue by the oxygen after being electrified, and that electricity, acting upon the iodide of potassium, (on the ozonoscope,) is not sufficient to produce its decomposition, and thus cause any change in the ozonoscope containing it.

Frémy and Becquerel proved that the ozonoscope, in the hermetically sealed tube containing oxygen, would be made blue when electricity was made to act upon the oxygen "by influence." This was done by dispensing with the metallic bulbs and by placing the tube between the branches of a conductor whose points touched the surface of the tube. The sparks, in passing from one point to the other, would, (in transitu,) lick the surface of the tube, and thus affect the oxygen it contained; this oxygen would become electrified and the test paper rendered blue. This last experiment was, to all appearances, carefully made, and really intended to remove all doubt and uncertainty; for, among the many causes which are constantly, and, even inappreciably, conspiring to vitiate these experiments, it is well known that the electric spark itself is frequently accompanied by foreign matter. This matter, it was thought, might produce some obscure, but material change in the ozonoscope; and it was decided to fully guard against this source of error. The experimenters anticipated the possibility of such a charge, on the part of those ever ready to cavil against the position they had assumed, and wisely made such a charge impossible.

The next position established was, that the ozonoscope would remain unchanged in a volume of oxygen gas. An ozonoscope was, for proving this, carefully suspended in a receiver filled with this gas; after remaining ten days, it was entirely unchanged. To prove that the gas was pure, it was electrified, and the paper immediately became blue. The same experiment demonstrated the careful preparation of the ozonoscope. The gas was electrified by the introduction of platinum wires, in connection with an electrical machine. These experiments were all made (and apparently carefully made) by MM. Frémy and Becquerel.

M. Scoutetten next furnishes additional proof that electricity alone could not produce any change in the ozonoscope. He placed one in vacuo and subjected it to intensely electrical influences. It remained unchanged, but became blue when oxygen was introduced and then electrified. It was thus apparently proved that oxygen alone is not sufficient to produce a chromatic change in the ozonoscope; that electricity alone is also insufficient for the production of such a change; that electrified or pure hydrogen produces no change; but that oxygen, as soon as it is electrified, produces a sensible and distinct change.

One farther step, to commend these experiments to the approval of the scientific world, was now necessary. It being proved that oxygen did not affect the ozonoscope; that electricity, hydrogen alone and electrified hydrogen produced no change, but that electrified oxygen produced a marked blue color, it was essential to prove that the iodide of potassium was, in conjunction with starch, an efficient and reliable means of investigation; that an ozonoscope, thus prepared, would always manifest the presence of electrified oxygen, or, what was claimed to be the same agent, ozone. The ozonoscope, chemically considered, is the iodide of potassium, for this only is affected by ozone; the starch is added, that we may perceive the degree of change which ozone produces on the iodide of potassium; but the starch in no way contributes to the production of this change. The iodide of potassium is the agent; the starch only indicates the extent of its action. Hence, it is necessary to show that the iodide of potassium will uniformly and efficiently act; that it will always manifest the presence of ozone. If it always acts in the presence of ozone, we, by the medium of starch, recognize the fact and extent of its action. Is it uniformly and proportionally affected by ozone?

To prove this fact, eudiometrical glass tubes, filled with pure oxygen, were inverted over a solution of the iodide of potassium and distilled water—oil being poured over the surface of the water, to prevent the influences of the atmosphere. By means of platinum wires, the oxygen, in the tubes, is subjected to the action of an electric current and thus gradually electrified. Becoming electrified, it acts, as electrified oxygen, on the potassium contained in the solution of the iodide of potassium and water. This portion of potassium, so acted upon, becomes potassa, by its union with a portion of oxygen. The potassium, thus uniting with a portion of oxygen, liberates a corresponding quantity of iodine; and this iodine, becoming liberated from the potassium, unites with the water, forming, in part, the solution. Each volume of oxygen, thus electrified in the tube, and uniting with the potassium in the solution, is replaced by a corresponding volume of the solution. As the experiment progresses, the solution becomes gradually tinged of a yellow color, from the iodine liberated, as portions of the oxygen unite with corresponding portions of the iodide of potassium. At the conclusion of the experiment, the gas has disappeared, having all united with the potassium in the solution; the solution, of a deep-yellow color, fills the glasses; and the capacity of the glasses becomes the measure of depression, on the surface of the solution. The results are the same, whether the glasses are filled with ozone, or with oxygen and this oxygen then electrified. In either case, we have it demonstrated that the iodide of potassium is entirely decomposed; and by starch we are able to measure and to see the degree and the end of this decomposition. By the iodide of potassium, then, we are able to detect the existence of this agent; and by starch, we are enabled to measure the extent of this decomposition. When these are properly combined, we have a true ozonoscope.

Scoutetten has published (in 1856) quite an extensive work, taking his own experiments and those of the most distinguished observers, to prove the truth of the position first taken by MM. Frémy and E. Becquerel, and afterwards so ingeniously defended by MM. Marignac and De la Rive. Scoutetten's work is styled, "Ozone, or Researches Chemical, Meteorological, Physiological, and Medical, upon Electrified Oxygen;" so fully satisfied was he and the leading authorities of the world, that ozone was electrified oxygen. The experiments are only equalled in ingenuity, care and apparent scientific candor, by their great number; they are exceedingly interesting and plausible, and, in their results, seem to indicate the truth of this proposition, that ozone is electrified oxygen, and the converse of this. As the work published by Scoutetten, in 1856, attracted much attention, both in Europe and America, and as its author very deservedly was awarded much credit for his views, and the ingenuity with which he sustained them, it is proper that we should give his opinion, as detailed in this work, on the composition of ozone: "I consider ozone as a body subject, like all chemical combinations, to conditions which favor its composition, or decomposition: possessing constant properties which serve to distinguish it from all other agents; a body producing varied and powerful effects, and which, from the multiplicity of the parts it performs in nature and the greatness of its results, deserves a distinct and exalted place. Although we still use the word given by Schönbein, and now adopted, we have no doubt of the chemical composition of ozone; it is electrified oxygen." This position has been fortified by hard labour and scientific research; and had, to sustain it, the names and deliberate testimony of the most prominent and careful authorities in Europe. One year since, it was accepted as the doctrine which all best investigators were ready to endorse and defend. Dr. Gregory, in his last and latest published opinions on this subject, thus writes: "It was at one time supposed, that ozone contained hydrogen, and it has been described as an oxide of hydrogen, HO^2. But even when formed in contact with water, there appears to be but one ozone. The recent researches of Andrews seem to establish this point beyond doubt, and it is certain, that perfectly dry oxygen gas yields ozone when electric sparks are passed through it." This is quoted from the published opinions of Dr. William Gregory, F. R. S. E., Professor of Chemistry in the University of Edinburgh. Dr. Andrews, to whom he alludes, published similar opinions in the Philosophical Transactions for 1856; and in the Journal of the Chemical Society of London, at a later period. At the same time, Dr. Andrews declared ozone to be an allotropic form of oxygen; he is justly regarded as good authority on such subjects.

It is seldom the case in Science, that error is long accepted as truth; under the caustic tests of constant analysis and experiment, every fallacy becomes inevitably exposed. Thus has it been in regard to the long cherished and ingeniously defended position in regard to ozone—that it was nothing more than electrified oxygen. It is a doctrine that must certainly take its long rest, among the exploded fallacies of the past. Griffin, in his recent publications, states that the conversion of pure dry oxygen entirely into ozone was accomplished only once, by MM. Frémy and Becquerel; "that it is rash to come to the conclusion that this object has been achieved from three experiments, of which two failed, and the best of which presents numerous reasons for doubt." The experiments of these gentlemen have always been cited as unanswerable proofs, in sustaining the position mentioned, Again, in opposition to the claim that pure dry oxygen can be electrified, we have the published statement, that Baumert was totally unable to accomplish this, after the most patient and satisfactory trial. He found, "that when oxygen was electrified with an induction coil, at the rate of five hundred thousand sparks in an hour, the product of that enormous exertion of power, continued for an hour, was only as much ozone as separated one millegramme of iodine from the solution of the iodide of potassium." These are already strong and convincing proofs against the truth of the theory claimed, as regards the chemical composition of ozone. But to add the last and more recent testimony, we will quote a brief extract from a paper read by Dr. Andrews, F. R. S., and Mr. Tait, M. A., F. C. P. S., before the Royal Society of London: "The commonly received statements that the whole of a given quantity of oxygen gas (dry), contained alone in a hermetically sealed glass tube, can be converted into ozone by the passage of electrical sparks, is erroneous." These gentlemen found "that not more than 1-100th part of the oxygen could thus be changed into ozone." Dr. Griffin says of this last statement, "it confirms, with experimental evidence, my double proposition, that oxygen alone cannot be converted into ozone, and that oxygen, in the presence of the iodide of potassium in aqueous solution, can be converted into ozone." It will be remembered, that Dr. Andrews was the authority on which Dr. Gregory (Professor of Chemistry in the Edinburg University) chiefly if not solely relied. But the most complete and satisfactory proof of the falsity of the theory, that ozone is but electrified oxygen, will be found in the fact, that whilst it is almost impossible to convert pure dry oxygen into ozone by electricity, it is one of the easiest experiments in the laboratory to thus convert the oxygen (by electricity) into ozone, if water moisture or hydrogen be present. Thus, when oxygen, in tubes over an aqueous solution of the iodide of potassium, is submitted to the electric current, ozone is generated with rapidity. Dr. Griffin explains this very naturally, by saying, "that the vapour of water rises into the oxygen gas and affords the hydrogen which is required for the formation of ozone." Again, it is now demonstrated, that when hydrogen is present, ozone can always be easily prepared, either by chemical or electrical means; but when hydrogen is absent, it becomes almost impossible to thus generate ozone, even in the most feeble quantity. As is appropriately asked by Dr. Griffin, "Why is this so? If ozone is only oxygen (even in any state), why is the presence of hydrogen so helpful, if not indispensable, to its formation?"

We find still another proof of the fact that ozone is not simply oxygen electrified, in the examination of one of the methods for manufacturing ozone. Ozone can readily be prepared from phosphorus, in the presence of oxygen and water; but dry phosphorus, in dry oxygen, does not produce ozone.* Dr. Griffin adds, that "this is intelligible on the supposition that ozone contains hydrogen; but not otherwise." According to this authority, "Nature sets no limits to the ozonization of oxygen, and does the work without difficulty or loss of time, when she is allowed sufficient hydrogen with which to do the work. When you reverse it, and set nature to make ozone without hydrogen, you resemble the Egyptians, who set the children of Israel to make bricks without straw."

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* Dr. Muller, of the University of Freiburg.

Although it is not absolutely necessary, in enabling us to investigate the properties of ozone, to learn its actions, to appreciate its presence, and to realize most sensibly the great *rôle* it performs in the drama of Nature, that its chemical composition should be fully determined, yet it is most desirable that there should be, in regard to it, the least possible ambiguity or obscurity. We should, however, profit by the history of the subject up to the present time, and accept what is suggested, only after the most rigid analysis and elaborate tests. Above all, we should be slow to avoid all premature conclusions, and the founding, upon such questionable bases, exaggerated theories and ingenious hypotheses. Nothing, than this, can be more truly inimical to the advancement and dignity of any science. The exact chemical composition of ozone must be the subject of still farther examination and controversy; and, for the avoidance of ultimate error, it is best that this should be the case. "Debatable questions, such as these, are worth the attention of the inquiring student. We are accustomed to laugh at the fantastic notions and the false reasonings of the alchemists, but we sometimes ride our modern chemical hobbies as unskilfully as they did the wild hobbies of the middle ages." Hypercredulity is the almost universal characteristic of the students of our present time; it is a most serious enemy to the progress of any science, but, above all, to that science (chemistry) which is founded on the unanswerable logic of fact. It cannot then be said, with absolute certainty, what is the true and invariable composition of ozone. It is clearly proved, however, that the recently accepted doctrine, in regard to ozone, is incorrect; it is not simply and solely, electrified oxygen.

(TO BE CONTINUED.)

CLINICAL LECTURES.

SURGICAL AND OTHER CASES OF INTEREST TREATED IN THE CITY HOSPITAL, CHARLESTON, S. C., DURING THE WINTER OF 1866. By F. PEYRE PORCHER, M. D., Surgeon in Charge.

Amputation of Thigh, upper-third, for fibro-plastic tumour; neither sutures nor adhesive straps employed.

D., æt. 55, formerly a soldier in the army of the late Confederate States, received an injury by a fall from his horse fifteen months before his admission into the Hospital, Feb. 1st, 1866. A large immovable tumour was developed upon the inner and anterior aspect of the thigh, just above the knee. It was supposed to be cancer by some who examined it, but the result has disproved the opinion. Upon careful inspection, I detected some fluctuation, and I considered it a fibro-plastic or fibro-cartilaginous growth, developed upon the periosteum by the injury which he had sustained, and imprisoning a large quantity of fluid. This diagnosis was subsequently confirmed.

The limb was removed by the circular operation, in the presence of a number of Physicians and Medical Students. From the extent to which the morbid growth encroached upon the thigh, I was compelled to operate high up in the upper-third, and could not use a tourniquet. From causes over which I had no control, the patient lost a good deal of blood, and the subsequent irritability, prostration and pain were so great, that I determined to employ neither sutures nor adhesive straps. Several folds of bandage were applied around the limb, and short and narrow strips of wet bandages attached to this were drawn across the lips of the wound and pinned underneath. By this means, the edges were adjusted and supported until his recovery.

Reäctionary fever was not very high, but suppuration was extensive, and the patient required great attention; a large amount of wine, eggs and milk were administered—to which, and to the avoidance of irritating interference and the classic dressing prescribed in the books, he owes his recovery. In 29 days he was well enough to go out upon the piazza. On the 20th of March, he walked a half mile, and an examination of the stump, as late as June 1st, exhibits an excellent result, with the bones completely covered. He took no muriated tincture of iron. By means of the wet strips, which adhere closely to the skin, the support to the limb was sufficient, and the stump was thus easily manipulated, from day to day, into the desired shape.

The tumour, upon examination, was found to be fibro-cartilaginous, and very similar to those I have removed from the head—a mixed cartilaginous and osseous degeneration being more common in those found in this region of the body. A pint or more of fluid was let out, with trabeculæ of lymph passing through it. It appeared to me to contain the elements of blood, fibrine, serum and clot, and I believe that the fluid was caused by the pressure of the abnormal production, as it extended, upon an artery causing the retention of the blood contents within the firm walls of the growth, which was developed upon the periosteum.

The results of such cases differ greatly from those experienced in army practice, where the exposure, previous ill health, draught upon the nervous system, and other depressing effects of a soldier's life, materially modify and diminish the recuperative capacities of the system.

Ablation of both feet following frost bite.

S. was one of six freedmen and women, admitted into the City Hospital the past Winter, with extremities frost-bitten, which in our climate, and during so mild a Winter, is a suggestive commentary upon their capacity to take care of themselves.

The sloughing and death of the tissues had extended, in both feet, to the middle of the metatarsal bones, where the line of demarcation was quite distinct, but daily progressing higher up. The entire sole and the heel of the left foot came away by the sloughing process, or had to be removed with the knife. I amputated both feet without difficulty at the line of separation, using the saw. There was little or no hæmorrhage, which was easily checked by the application of the persulphate of iron. In this case, as in all those reported in this paper, a solution of Labaraque's liquor of chlorinated soda, ℥ iv. to a quart of water was used, and its antiseptic, deodorizing and healing powers most satisfactorily tested.

I find no application superior to it for dressing stumps, suppurations, wounds, etc. I may state, in passing, that during my active duties as Surgeon in charge of the Naval Hospital at Norfolk and the South Carolina Hospital, at Petersburg, Va., where several hundred sick and wounded were continually under treatment, I introduced the use of a solution of commercial copperas, which I had before employed in the Marine Hospital at Charleston; it suggested itself to me as affording one of the most economical and efficient substitutes, during the pressure of war and blockade, and I recommended it to the late Surgeon General for its valuable antiseptic, astringent and stimulating properties. This Winter, I have been employing, in small-pox cases and in wards containing sloughing wounds, the disinfecting powders distributed by the Freedmen's Bureau, the chlorinated gasses generated by which are evolved by the addition of dilute sulphuric acid.

With reference to S.'s case, it became an interesting question in surgical pathology, to ascertain whether it would not have been better to have amputated the leg most extensively diseased above the ankle, and to have employed Syme's operation in the other, as the amount of sound tissues permitted this. The question still remains unsettled, for even now, (June 1st,) though the reparative processes have been most active and one foot has almost entirely cicatrized, the other does not present a sufficiently firm surface at the sole for walking, and the problem still remains sub judice. I have reason to believe, and my opinion is supported by others, that he will be able to walk on both feet, when the extensive cicatrized surfaces have hardened under the healing influences of time Amputation above the ankle can be performed at any time that its necessity is made apparent. So far, the course adopted seems the best.

Amputation of the arm above the wrist, for gun-shot wound.

A female, æt. 23, was admitted with a wound received in the Charleston jail, from a rifle fired from the hands of a soldier, a few feet from her, which tore up the bones and tissues about the wrist, and also involving the thumb. There was besides an extensive wound in the fore-arm of the other hand, the same ball having penetrated, passed up above the elbow joint, where it made its exit.

The slough from this wound, though threatening to become extensive was arrested by the solution of Labaraque's chlorinated soda, and healed in course of time. I amputated the other arm above the seat of injury, by the circular operation. She lost no blood, and though sutures were used, they soon came away, and the application of bandages and light wet dressing, similar to those used in the other cases, were employed. The arm was a long time healing, and there is still some tenderness about the stump, on account of a fragment of bone, which was subsequently extricated by the natural processes. The difficulty in the case I ascribed to the simple fact, that her arm was held up, instead of being kept in a depending position that the pus might gravitate outwards. There was never the slightest anxiety about her ultimate recovery, as she never lost flesh or appetite, and the reparative powers of her system were demonstrated in the healing of the other arm.

These amputations, above related, were all performed the same morning (February 4th).

Spontanous amputation from a burn—Amputation of fore-arm healing without the use of adhesive straps or sutures—Rapid recovery.

A. G., a Frenchman, æt. 38, entered the Hospital March 10th, with disease of the fore-arm. The radius and ulna were denuded some six inches above the wrist, or were only covered by a thin layer of new tissues. The bones presented the appearance of having been sawn through or lopped off by a sharp cutting instrument. This, however, was a case of spontaneous amputation by the death and destruction of the parts consequent upon a burn. It occurred in an epileptic fit, and the evidences of its extent were seen by cicatrices, extending as far as the deltoid muscle and the shoulder. The pigmentum nigrum was in several places completely removed, rendering the skin white in patches.

I operated below the elbow joint, though the cellular tissue was quite thickened and infiltrated, by cutting from without inwards to make the inner, and transfixing to make the outer flap. No sutures or adhesive straps were used, as, in D.'s case, only employing narrow wet bandages, by which the wound could be readily made to take any shape desired; and these were removed every two or three days, being tightened each time till the thickened edges of the stump were brought into more or less close apposition. Where this could not be effected, the hiatus was filled up by granulation. The reäctionary fever was very brief, and little interference was demanded. The subject commenced to walk about the wards the third day following the operation, and the wound healed completely in about twenty days.

Resection of portion of third metatarsal bone.

This was necessitated by injury produced from exposure to cold. The knife and cutting forceps were employed. The wound healed, and no special interest attaches to the case.

Tenotomy and removal of tumour.

I only record in these cases the operation for tenotomy of both the Achilles tendons for burns in an infant; and the dissection of a cheesy tumour from the face. In the last mentioned, the sac was completely dissected out without injuring it in the process, and with rapid recovery, though the endeavor to secure healing by the first intention, by the exclusion of air through means of adhesive cloth, was ineffectual. A narrow bladed and small knife facilitates greatly the operative procedures in cases of small tumours, where nicety of dissection is required. I take occasion to add, that I now uniformly employ a tenotomy knife and open buboes with it by a subcutaneous section, thus letting out their contents, without exposing an extensive granulating surface to the open air, as by the usual method.

Cancer of tongue relieved by treatment.

This case, in the person of an adult freedman, was supposed to be cancer by all those who saw it. There was destruction of a large part of the organ, which had occurred within a few months. The portion of the tongue remaining was hard—exhibited a large cavity, secreting a bloody, offensive, sanious fluid. with every visible characteristic of the disease. The organ was so far implicated, indeed, as not to permit of any surgical operation for its relief, unless the inferior maxillary had been divided. Yet under the use of bark and iron tonics, with brandy internally, and a wash of twenty grains of sulphate of copper to an ounce of water, applied with a mop three times a day, he improved in six weeks so amazingly as to be in a condition which permitted him to leave for his home in the country, in order to resume his ordinary occupation.

Though the solution of continuity continued, the cavity had greatly shrunk, the offensive secretions were suspended, and so great and positive an amelioration of the symptoms had occurred as entirely to confound those who examined its progress from day to day. This man was examined by a number of my medical friends. The description is carefully drawn, with the most marked intention to avoid high coloring. The "cancerous juice" was never examined by the microscope.

Protrusion of portion (eighteen inches) of large and small intestines inverted, including the cæcum, appendix, a portion of ascending colon, with a double artificial anus—Operation for its relief.

This extraordinary case, which is almost unique in the annals of surgery, merits a more detailed description than I can give in this brief sketch.

The subject, a negro man, æt. 35, had been operated upon four years previously, for a hernial protrusion in the right groin, which was mistaken for a bubo. The accounts are obscure, but it was followed by the persistent extrusion of a hernial sac with the formation of an *artificial* anus.

A few days only before his admission into the Hospital, (April 20th,) he had been visited by my friend, Dr. Somers Buist, one of the Health officers of this City, (to whom my thanks are due, for repeated assistance in my duties at this Hospital,) who found him in an out-house, with a tumour protruding from the walls of the abdomen. He ascertained that this remarkable extension of the disease had only occurred within a few days preceding, and he procured his admission into the Hospital.

The tumour was found to be about eighteen inches in length, of the diameter of the colon when distended; about four inches at its point of exit from the abdomen, diminishing to three at its extremity. It was raw, and consisted of the everted mucus membrane. The intestines had become completely everted, having forced their way through the artificial anus first formed, the mucus coat external; and this enormous increase had occurred only three days before his admission. It was rounded in form, with the natural peristaltic vermicular movements still persistent, and at the portion nearest the walls of the abdomen, from where it had escaped, was an orifice, a second artificial anus provisionally established by Nature, which directly communicated with the cœcum within, and pouring out occasionally the fœcal contents of the intestines. It is difficult to describe it without a drawing. It resembled an immense caterpillar, with the slow, creeping motion peculiar to the insect.

In the presence of, and after consultation with, a number of Medical gentlemen, who were invited to witness it, including Drs. E. Geddings, Wragg, Chazal, Pelzer, Kinloch, Logan, Buist, Parker, Assist. Surg. Dewitt, and others, it was determined to ablate the entire mass, as affording the sufferer the only possible chance for recovery, though with slight hope of ultimate success. To Dr. Geo. S. Pelzer, Chief of the Health Department of this City, I am under special obligations. I cut into and removed the whole mass, with the exception of a portion of the circle of intestine, about an inch above the walls of the abdomen, which held the ligatures necessary to restrain the flow of blood from the mesenteric arteries. So extensive was the bleeding surface, that a number of ligatures had to be used, the compression being effected by inserting the threads, winding them in and out before knotting, by which means the several parts were successively involved. The hæmorrhage, which was excessive, was arrested, but death ensued in thirty-six hours.

The examination of the parts removed and the post-mortem, revealed a complete eversion of the mucus coat of the intestine throughout the whole extent, and protruded as described in the caption. The transverse colon and the rectum which remained within the abdomen were atrophied, the latter containing hard scybalæ and degenerated fœcal matter, converted into a substance like adipocire. No evacuation per rectum had been effected for eighteen months preceding.

Extensive wound through the Larynx, penetrating the Pharynx, treated by silver wire sutures.

M. B., a young man of twenty-one years of age, endeavored to take his own life in a partial state of phrensy consequent upon a false imprisonment for debt. With a razor he divided the larynx between the thyroid cartilage and the hyoid bone; but, as usual, failed to cut any large arteries. When his head was thrown back, a large gaping wound three inches in length, was revealed, and the finger could be passed into the pharynx. Both the external wound and that made into the larynx were jagged and uneven. He spoke with difficulty and was disturbed and restless.

Doubtful of the necessity or propriety of applying sutures to the internal structures dividing the thyrohyoidean membrane or the laryngeal cartilages, I contented myself with careful adjustment of the external wound, which was accomplished by the introduction of silver wire sutures. It required one hour and a half to complete the work. I inserted the wires most carefully, and as closely as possible, by means of a needle, using two pair of forceps, one to fix the wires after their insertion, and the other to twist these together. Absolute quiet and rest upon his back was enjoined, but so mercurial a person could neither refrain from eating, talking nor moving about, even if his life depended upon it.

The closure of the wound was complete, and his voice immediately improved in tone and volume. In less than five days he left the Hospital for a walk of a mile. Healing by first intention occurred throughout the whole extent of the external wound, save at one point, where a little suppuration occured. An albuminous exudation surrounded the sutures, which were removed in fifteen days, when he left for his home in the city, since which he has been at his ordinary duties and has entirely recovered.

I am at a loss to account for the mode of junction of the cartilaginous borders of the divided larynx in one who used his voice, throat and pharynx so uninterruptedly. The rapid and perfect recovery demonstrates the inutility of stitching the internal structures, which involve the leaving wires or ligatures imprisoned within the cavity.

Injury of extraordinary extent from a circular saw.

A. B., an adult white man, aged 38, was received into the Hospital, March 22d, in a truly desperate condition from an injury of an unusual character. Engaged in attending a lumber mill on Cooper River, his foot slipped and he fell upon the saw when in motion. From the appearance of the wound, its great extent, involving as it did one entire half of the body, the teeth of the instrument in revolving must have drawn the victim to itself; so that the deltoid muscles of both arms were deeply divided, the left clavicle cut through, the muscles covering the thorax also cut across, the sternum partly sawn through; and the whole wound, as it may be imagined, torn and mangled and presenting a terrible appearance. Much blood was lost at the time, yet this man was conveyed nearly twenty miles to the city. Death was supposed, by every one who saw him, to be inevitable.

He was kept absolutely quiet, with supportive treatment, milk punch, etc.; cold applications, with weak solutions of Labaraque's liquid, were made to the injured region, muriated tincture of iron and morphia administered, and careful cleansing of the wound required. I had to clip off the jagged and divided edges of the clavicle; removed successively several pieces of bone suppurating from the sternum; put him in a partly upright position, when this could be done, that the pus might gravitate outwards.

At present, (June 1st,) cicatrization over a large portion of the wound has occurred, with contraction and consequent great diminution of its size. This extensive wound is not closing and filling up by granulation, but by *contraction*, as if Nature elects the shorter process when she can find movable tissues for her purpose, like the lax skin over the thorax.

Though not entirely healed, there is every assurance that he will recover, as his appetite is good, spirits and strength excellent, and every presage in his favour. The case is a remarkable one, from the magnitude and character of the injury, and the favorable aspect it presents at this time, is what no one had a right to expect. Had a similar injury occurred to a soldier in active service, he would certainly have died; whereas, it happened to one in active health and with recuperative energies unimpaired by previous depressing influences. In this, as in several of those related above, the marked difference in favor of civil practice, even in Hospitals, over military, is plainly exemplified.

To show the possibility of doing without frequent purgatives and laxatives in surgical cases, I mention that this man had but three operations in thirty days, notwithstanding he was improving all the while; was taking a quart of milk daily; on several occasions had a pint of oysters, besides rice, biscuits, etc. I make it a point to avoid *irritating in any* way a patient progressing favorably, and avoid purgatives, calomel, tartar emetic, whenever possible.

In another case, which I treated in this Hospital, a seaman from the gunboat Kewance, remained for eight days in a comatose state, apparently from a fracture of the skull over the left temple; had dilated pupils, was almost the whole time partly insensible; yet he recovered, notwithstanding he was not moved for seven days. Enemata and other means were employed ineffectually. I regarded it as a case of compression relieved by a spontaneous hæmorrhage and the use of cold applications, with stimulants.

Case of recovery after paracentesis abdominis in an anæmic subject.

The subject was a white man, aged 33, very pale and exsanguine, and to all appearance in an exceedingly unfavorable condition to give much hope of success; The trocar was inserted by Dr. R. Lebby, at his request, and about two gallons of albuminous fluid were drained from the abdomen. The patient then came under my care; was put upon iodide of potash, bark and iron tonics, nutritious food, with brandy. I applied occasionally to the abdomen a favorite combination, to assist in the discussion of accumulations, enlargements, buboes, etc., viz., mercurial and iodine ointment inunctions. He perfectly recovered, and was discharged from the Hospital after the lapse of two months, notwithstanding the sinister prediction of all who witnessed his condition before and after the tapping. A considerable reäccumulation of fluid followed the operation, which was all absorbed in course of time. This man had some enlargement of the liver and spleen. I report it on account of the infrequency of recoveries after tapping for ascites, particularly in so depressed and anæmic a subject.

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I do not include in this communication cases of fractures, dislocations, pneumonias, etc., treated at this Hospital. I continue to treat successfully chronic ulcers of the leg, even those connected with varicose veins, by confining the patient to the recumbent posture and using irrigation continuously night and day.

Employment of comp. spirit of sulphuric ether, chloroform and their congeners, in diminishing the duration of chill; also as an ingredient in cough mixtures.

My attention was called, several years since, to the employment at the West of chloroform internally, in arresting the duration of congestive chills.

More recently, the Steward of this Hospital related to me his own experience of the most marked benefit attending a prescription which he took of ℞. Tinct. of Gentia, Hoffmann's Anodyne and Tinct. of Capsicum, in materially lessening the intensity, if not shortening the duration of a very severe ague, which he contracted whilst descending one of our Southern rivers at an inauspicious season.

In examining the prescription critically, I could ascribe little power as an antiperiodic to any of the species of gentian, which are the simplest of our vegetable bitters; though a recent perusal of the medical periodical literature of the past four years, has brought to my notice more than one writer, claiming some efficiency in malarial fevers from the use of the gentianæ.

However, admitting that upon theoretical grounds, or from what we know of its constituents, it should have no more power than the Sarracenia purpurea in small-pox, I determined not to reject this constituent of the formula. The capsicum may with more plausibility claim some credit as an ingredient, if only acting during the cold stage of fevers by its warm aromatic and stimulating properties, due to the *capsicin* which it contains. But from the information I had previously obtained, from my own experience, nine years since, with Hoffmann's anodyne liquor in delirium tremens—from my knowledge of its properties as a sedative to the nervous system, combined with its action as a diffusible stimulant, (for it has a double action,) added to the reported action of its congener, chloroform, sustained as it has been by recent publications in this Journal respecting its utility in the congestive stages of fever—I readily undertook to test their value.

The combination (about twenty drops of each in water) was accordingly administered, immediately upon the approach or access of chill to six of the inmates of the Hospital. My efficient House Physician, Dr. Knotts, being upon the spot was requested to superintend personally its administration immediately to all who were seized with chill. He reports the most satisfactory results, confirmed by my own enquiries of each. The efficacy of the quinine subsequently employed, seems to be increased by the previous use of the formula which diminishes or arrests the chill. And this accords with the convictions of my own reason, for it is during the congestions of the cold stage, and in proportion to its intensity, that those morbid alterations occur in the fluids and solids, that are productive of most evil and disturb the functions of the glands and excretory organs.

I hope that the Profession will give it a fair trial, as the cases in which I have used it are too few to draw positive conclusions from. I have also used the same combination with very beneficial effect in nervous hysterical attacks, attended with chill. It is needless to report these cases in detail from my Hospital book.

Chloroform I have for many years, and also during the past Winter, found to have an admirable effect in cough mixtures. As for example, with comp. syrup of wild cherry bark, with solutions of morphia and tartar emetic, particularly in the spasmodic cough of children following whooping cough. I am convinced, from three cases treated under my immediate observation, and after a careful comparison of the two agents, that it is much more efficient in these cases than assafœtida. I cannot speak in too high terms of the use of chloroform in coughs, particulary where there is a nervous or spasmodic element.

In a recent case of labour in a lady—where I had occasion to administer for an accompanying cough, ℞. Chloroform gtt. xx, Tartarized antimony grs. ii, Morphia grs. ii, Acetate of Potash ʒ ss, Water ℥ viii, a tablespoonful every three hours—there was, whether accidental or not, marked relief to the pain and nervous phenomena. This, however, requires farther experimentation to avoid the usual post hoc, ergo propter hoc, difficulty in reasoning with respect to the value of therapeutical agents.

The tincture of the yellow jessamine root, (gelseminum sempervirens,) which was much employed during the late war, in some sections of the Confederacy, should now be more fully examined, on account of its influence as a sedative.

ORIGINAL CORRESPONDENCE.

LONDON, May, 1866.

It has been suggested to me that a communication on the subject of acupressure would be acceptable to many of the readers of your Journal, and I therefore purpose devoting part of this letter to a brief notice of some of the more important facts of the subject. Acupressure has for some time been exciting the attention of the Profession in Scotland, as a hamostatic agent and a substitute for the ligature, and it certainly deserves an unprejudiced trial at our hands, from the mere fact of its having been introduced and practised by one so talented and careful as Sir James Simpson. It has already provoked much criticism North of the Tweed; but that criticism has been, on the whole, decidedly favorable. Professor Syme, of the same University, has however, taken up the gauntlet in a very choleric manner, in behalf of the old system of ligature and torsion; has roundly abused his colleague, and has crowned his disapproval by tearing up Professor Simpson's pamphlet before a large class of Students. Such opposition, however, is too violent to be of any value, and has really been instrumental in extending the knowledge and the practice of acupressure, particularly in Scotland. In London, strangely enough, it has not yet had a fair trial, at all events, not upon the scale it deserves, nor have I heard of its having been systematically tried, up to this time, on the Continent.

Four methods of using it may be mentioned. The first by means of a long pin passed through the skin, then beneath and across the artery, and then out by the skin, on the other side of the artery. This method is not new, and is not applicable to the majority of amputations; for in a fleshy flap, or one of moderate thickness, adequate pressure would not be obtainable, without involving a large quantity of soft tissue, nor without considerable difficulty. For thin flaps however, or for superficial vessels, this plan may be adopted, and usefully combined, with twisted silk, or wire externally, just as in the operation for hare-lip, in which operation, by the way, the arteries are always compressed on the principle of acupressure.

The second method was devised by Dr. Knowles, of Aberdeen, independently of Sir James Simpson, though the latter had used it for some time previously. It consists in transfixion and partial rotation. The needle is placed beneath the artery, from right to left, a little above where it is bleeding, taking in as little of the surrounding tissues as possible; the point of the needle is raised, twisted round over the vessel, and then pushed into the muscular tissue beyond, which serves to retain the twist thus given to the artery.

A third method, I am told, is much in use at Aberdeen, in which a long needle is passed into the tissues, on the cut surface of the flap, at some distance from the artery, and out again close to the artery, but on the same side of it; then the needle is passed on, over and across the artery, and plunged into the muscular tissue beyond, its point being brought out at the other side of the flap.—An apparent objection to this plan would be the awkwardness and inconvenience of having the flaps of an amputation transfixed by a number of very long needles; but this is probably less in practice than it appears at first sight, especially as the needles have not to remain in long.

A fourth method, is the one on which most reliance appears to be placed by Sir James Simpson, and which it is said, will in the main, supersede the others. In this he makes use of a sewing needle with an eye large enough to carry a fine wire, whereas, in the other plans, a simple hare-lip pin is the instrument used. The point of the needle is entered a few lines to one side of the vessel, on the raw surface of a flap, then pushed below it, and made to emerge again beyond. A piece of metallic suture wire is now doubled, and its noose is thrown over the point of the needle; the double wire is then twisted once or twice round the eyed end of the needle, and then brought out of the wound together, with the fine wire which is attached to the needle. By this means the vessel is constricted between the needle and the double wire, and the apparatus is so arranged that on withdrawing the needle, by means of the fine wire, there is no impediment to the removal of the twisted double wire. By this method, arteries of any size can be obliterated. The objection against the second plan, would probably be its extreme pain-fulness, although no doubt the pressure exerted would be very effectual. The choice appears to me to lie, in ordinary cases, between the third and fourth methods, of which the former is simpler and more rapidly applied; the latter more elaborate, but exerting more accurate pressure on the vessel, without involving much of the surrounding tissue.

The directions given as to the time at which the needles should be removed must necessarily be vague, for every Surgeon will confess that no rule on the subject could be absolute. Sir J. Simpson thinks that a very few hours will be quite sufficient for the majority of middle sized vessels, and for the femoral 48–50 hours; but a gentleman from Aberdeen, who was speaking to me on the subject a few days ago, assured me that a case had lately occurred in that City, in which the acupressure needle was removed from the femoral artery in twelve hours, with perfect safety.

The advantages which Professor Simpson claims for acupressure, over ligature are drawn out by him in a very elaborate table, under twenty-one headings, but these may practically be reduced to a few simple ones. The ligature requires the separation of the extremity of the vessel from surrounding media, and therefore, from nourishment and life. The acupressure needle causes only temporary strangulation of the vessel, is removeable at will, and does not disturb the connexions of the distal portion. For this reason it, to a great extent, obviates the drawback to primary union, caused by the ulcerating through of the ligatures and the liquefaction of the dead ends of the arteries. Another argument in its favour, is its not having any power of imbibing putrid or other fluids, so that it does not tend to oppose primary union in this way, as the silk ligature does. Its unirritating nature is admirably shown in a case reported by Dr. Philip Watson, in which five needles were used, and three allowed to remain in the wound for twenty-two days. He states that they caused nothing more than a little discharge of serum, for a fortnight after the operation, and when the needles were removed no pus or serum followed. Secondary hæmorrhage should theoretically, therefore, be rare, and has hitherto proved so, after operations where acupressure has been adopted. That it really possesses the power of controlling hæmorrhage, must unhesitatingly be admitted, after reviewing the statistics of cases already operated on; and it must also be allowed that remarkable success in rapid, if not primary union, and in absence of fatal complications, has hitherto attended it; at least this is true of the cases published.

The chief practical objection yet urged against it, seems to be the inconvenience which must attend the operator, when working at a surface barbed with sharp needle points, and the awkwardness of their arrangement, when the flaps are to be closed. Yet, this is said to be much less than would seem, and in a case of Dr. Philip Watson's, of excision of the elbow-joint, as many as eleven were used, no mention being made of any inconvenience.

I have not heard yet of acupressure having been applied to the treatment of aneurism, but doubtless the trial will soon be made.

The ligature has now been in use so long, its practice has taken root so widely, and it has done its work on the whole so very satisfactorily, that it is not to be wondered, at that the greater number of Surgeons were loth to discard so old a friend, to try the efficacy of a new principle, which, on the surface, appears so much less certain in its operation. However, we are scarcely yet sufficiently in possession of facts, relating to it, to see the extent of its value; but if it will bear the test of more extended experiment, it will not lie so long hidden or neglected, as did the ligature itself. Two centuries will not be allowed to go by before Sir James Simpson's name will be revived, if acupressure be really a philosophical advancement upon Ambrose Paré's humane discovery.

Cholera has again broken out in England, but does not appear to have established itself on a firm footing as yet. It comes in the present instance from the German emigrants, who pass through Rotterdam and Hull, to embark at Liverpool for New York. On April 2d, the cholera broke out on board the steamship England, five days after her sailing for New York, and spread with fearful rapidity, so that the Captain steered for Halifax as the nearest port. A few days after, there was an outbreak on board the Virginia, occurring in about the same latitude, and the same time after sailing. The Virginia kept on her course. A third vessel, the Helvetia, however, on a case of cholera occurring on board soon after sailing, returned to Liverpool, and has been placed under quarantine. In these ships the persons attacked were nearly all Germans. Since then, (on the 2d instant,) cholera has appeared in the town of Liverpool itself, among three German families, who had come to Liverpool to emigrate, but had been stopped on account of their health. Up to the 13th instant, six deaths had occurred in the Liverpool Workhouse Infirmary, and twenty on board the Jessie Munn, which had been fitted up, as a hospital ship, for the cholera patients from the Helvetia. Of these twenty-six fatal cases, twenty-one were Germans. The state of the German lodging houses in Liverpool is reported to be so bad, from overcrowding by intending emigrants, and from the dirty habits of the people, that it is marvellous the cholera has not yet spread further among them. The proper plan of preventing the importation of the disease, would appear to be to establish a quarantine at Hull, where these people land from Rotterdam, en route for Liverpool and New York.

The following cases of fracture of base of skull, occurring in hospital practice, are I think of interest.

1. W. I., æt. 24, railway porter, admitted 23d July, 1865, with compound fracture of skull, extending along left parietal bone for some distance. Wound an inch and a half long; finger nail could be inserted into the fissure, but no depression of bone could be felt. On the right side, opposite occipito-parietal suture, low down, was another scalp wound. There was some coagulated blood in the right nostril, and the right upper eyelid was ecchymosed. A little blood was oozing from the left external auditory meatus. Shortly after admission, he vomited a quantity of blood, which appeared to have been swallowed. Breathing tolerably easy; not noisy; does not answer questions; is restless; sighs occasionally.

24th. Restless; takes food passively; water drawn off; pulse 80; no more vomiting or bleeding.

26th. Quieter; pupils equal; sensitive; water drawn off.

28th. Improving.

August 11th. For the last ten days he has answered questions with more or less relavency; will tell his name readily; says he is in no pain; is troublesome and unreasonable, quarrelling with nurses, &c. Pupils natural; wound of head quite healed; injection of left eye disappearing.

September 14th.—Discharged, cured.

2. J. T., æt. 34, shoemaker, admitted August 15th, 1865. Was thrown from the seat of a van, and this probably ran over head and neck; recollects nothing after falling; insensible for half an hour after admission, then convulsions, with opisthotonos and gnashing of teeth. The conjunctivæ were sensitive. He evinced great pain on manipulating the neck over sub-occipital space. Right scapula was fractured, transversely, below spine. There was bleeding from the left external auditory meatus, followed by serous oozing, which continued for two hours and amounted to about three teaspoonfuls.

16th. Is quite insensible; deaf on left side; left pupil dilated, but acting; right pupil normal. Blood dried in external ear; great tenderness over mastoid processes, and above ears, and also along cervical spines. Cannot protrude tongue fully. Pulse small, 70.

17th. There was a little more oozing from left ear yesterday afternoon; left pupil dilated; severe pain in left occipital end cervical region. Can protrude tongue further, and whistle a little. Pulse very small, 64.

23d. Pain still about left ear, with a buzzing sound; opens mouth with difficulty.

24th. Sees double, particularly since yesterday evening; imperfect sensibility of left side of face, with inability to use muscles; cannot whistle; food collects in cheek; cannot close left eye; complains of shooting pains in left side of head.

Sept. 8. Remains quite deaf in left ear, with singing in ear; vision not double now; cannot quite close left eye, which is slightly congested; cannot project tongue beyond line of teeth; on attempting to do so, pain is felt below ear; complains of dizziness and nausea. Pulse small—irregular.

18th. Dizziness in head; deafness and facial paralysis continue. Pulse 84.

Sept. 20th. Went out.

Nov. 22d. Occasionally comes to hospital; hearing not improved; facial paralysis less, but still existing; scapula well.

3. N. K., æt. 27, labourer, admitted Jan. 13th, 1866; drunk; run over by a cab. When admitted was suffering from shock; sur-

face cold; bleeding from left ear; pupils equal; lower angle of scapula fractured.

14th. Blood runs from ear; left pupil contracted; right dilated; slight squint; tongue protruded to left side; left side of face relaxed, with partial paralysis of sensation.

15th. Left side of face relaxed, but muscles will act to some extent; some part numb; pupils rather contracted; sight double; vision of left eye indistinct; tongue protruded rather to left; no oozing from ear now, but left ear deaf; partly closed with clot.

16th. Vision still slightly double.

18th. Depression observed above and over the front of the left mastoid process; not noticed at first.

22d. Left side of face still paralyzed; hardly any headache; is less deaf; no double vision; tongue protruded towards left side.

29th. Sight improved; still deaf in left ear, with paralysis of face.

Feb. 14th. Still numbness of left side of face; food collects in cheek; deafness not improved; depression of bone in mastoid region permanent.

16th. Discharged.

4. C. M., æt. 25, admitted March 2d, 1866, having been knocked down when drunk, and run over by a cab and kicked on the head by the horse. Was insensible when admitted, with dilated, inactive pupils; an hour after, the pupils acted. There was a wound on the left side of the occiput, with considerable tenderness; no depression of bone felt. Left side of face rather swollen, flattened, and its muscles not acting; tongue protruded in median line; does not hear well with left ear, which is full of sero-sanguineous fluid, and fills rapidly after washing. There was also evidence of pelvic fracture, with a wound of the right labium, which bled profusely.

3d. Pupils equal, acting; oozing from ear continues.

5th. Left side of face still paralyzed; pain across forehead; oozing from ear ceased yesterday.

8th. Paralysis of face continues marked.

24th. Paralysis of face as before, with partial anæsthesia.

May 14th. This patient is still in hospital, doing well, except that the paralysis of the face continues as before.

Fracture of the base of the skull is probably not so rare as is generally thought. We observe many cases of this form of injury, in the post-mortem theatre, when it was undetected during life, the symptoms and the death being perhaps mainly due to some other injury. Besides, it is natural to suppose that the cases of fatal fracture of the base of the skull should not comprise the whole or even the majority of instances of this injury, for there may be extensive fissure, with very little displacement, and the symptoms may be only those of concussion. In the cases above related, however, there was distinct evidence of fracture in the bleeding from the ear, or ear and nose, followed in two of the cases by oozing of serous fluid. In three of the cases there was also deafness, with paralysis of the facial nerve on the affected side. The serous flow from the ear is generally considered the most important symptom, as indicating fracture through the auditory canal into the tympanum and rupture of the membrana tympani with escape of cerebro-spinal fluid. It is doubtless a very valuable sign when present, but it is absent in a considerable proportion of cases, on account of the fracture not having taken precisely the line indicated, while, when present it can scarely be regarded as pathognomonic, for it has been observed in a case of fractured jaw, where the cranium was uninjured. However, when the flow is copious and comes on early, there can hardly be a doubt of its service.

One important lesson to be learned from cases of this kind, is the care necessary in the treatment of obscure injuries of the head. The patient may have sustained fracture of the base, and may have no other symptoms than those of concussion, which pass off in a day or two. If now the patient be considered well, and allowed to return to work he may be attacked with dangerous inflammatory symptoms. It is, therefore, advisable in all these doubtful cases to enjoin perfect rest, for some time after all the symptoms have disappeared.

PARIS, May 1866.

The publication of a work upon "Lying-in Hospitals," by Dr. Leon Le Fort, of the Medical School of Paris, and the pending discussion upon the same subject, within the precincts of the Imperial Society of Surgery, have stimulated the interest, created by the heavy mortality presented in these institutions. I will endeavor to resume briefly the substance of the remarks on this occasion.

M. Tarnier opens the discussion, saying that a lying-in hospital being an institution of a particular kind, reserved for diseases of a special nature, there must be certain rules observed in the construction and disposition of the building. The three following questions naturally present themselves. 1st. What is the mortality of women in child-bed? 2d. What are the causes of the mortality? 3d. What are the prophylactic means to be employed? In 1856, M. Tarnier being resident student at the "Maternité," observed an epidemic in that institution. In France, the records of births and deaths being scrupulously kept, M. Tarnier, on application, was admitted to examine the registers, at the Mayor's office, and was handed the statistical tables of the bureau of charity. Comparing the results furnished by city practice, with those obtained at the Maternité, for the single year 1856, it was remarked, that in the hospital, the number of deaths was seventeen times greater than in the city. This result was startling, and at first, was with difficulty credited. At the request of M. Velpeau, M. Trébuchet undertook a series of fresh researches, the result of which was, that for the whole City of Paris, out of 1000 cases of child-birth, in city practice, only four women had died. It was consequently proved that the hospital mortality was out of all proportion with that observed in the City. In 1858, at London, and in 1862, at Leipsic, the same result obtained. In 1862 there appeared statistical tables of the mortality of women in child-bed, in the hospital of Paris, from 1852 to 1862. Here are the figures:

Maternité,........................	1	death in	19	cases.
Cliniques,........................	1	"	21.2	"
Hotel Dieu,........................	2	"	30.4	"
Saint Louis,........................	1	"	24.7	"
Saint Antoine,........................	1	"	14.8	"
Lariboisiére,........................	1	"	12.7	"

With the proportion above established, it is easy to find the ratio for City practice.

Later, St. Petersburg and Vienna furnished similar results. Tables for the years 1861-62, comprising all the cases observed in Paris, both in hospital and private practice, gave these figures:

Hospitals,	14,197 cases	1,169 deaths.
City,	99,911 "	559 "

In 1863-64, the proportions remain about the same. Other Cities in France confirm the above lists.

M. Lefort, in his work, publishes the statistics of 1,813,093 cases of child birth, collected from various sources, with the following results:

Hospitals,	888,312 cases	30,594 deaths	1 in 29
City,	634,781 "	4,405 "	1 in 212

From this array of figures, M. Tarnier concludes the number of deaths in hospitals is at least eight times greater than in City practice.

As to the causes of this mortality, M. Tarnier makes the following remarks: The most frequent cause of death, in recently delivered women, is puerperal fever. The deaths from puerperal fever, are six times more numerous, than from other diseases. (By puerperal fever, M. Tarnier means peritonitis, metro-peritonitis, &c.) The seasons, primiparity, the length and difficulty of labour, have been assigned as the causes of puerperal fever. Epidemics have been observed at all times of the year. Still, from statistical tables it would appear that the mortality is greater during the cold months, and this is probably owing to the fact of want of ventilation in Winter. There is no doubt that women, becoming mothers for the first time, are more exposed than others. Difficult accouchements, and those which require surgical intervention, are more apt to be followed by fatal peritonitis. It may be urged, that difficult cases are usually sent to the hospitals, and that the ratio of mortality is thus accidentally augmented. The answer to this is, that in lying-in hospitals operations are, comparatively speaking, rare, and that their gravity presents only a very feeble influence on the lists of mortality. The women who people the hospitals, come from the lower classes, and are consequently subject to privations and distress. Notwithstanding this apparent predisposition, women of this order of society are exempt from puerperal fever in a hospital, where the disease does not reign in an epidemic form, whilst they are decimated at another point in the same City where the disease exists. Poverty, and its attendant train of misfortune, do not seem to be the principal cause of mortality. The same result holds good for mental distress. From the tables of the Paris hospitals, married women furnish a smaller number of deaths than their unmarried companions. The ratio of deaths is as follows:

1861. Married; 1 death in 11 79-100 cases. Unmarried; 1 death in 8 10-100 cases.

1863. Married; 1 death in 10 36-100 cases. Unmarried; 1 death in 6 76-100 cases.

1865. Married; 1 death in 9 51-100 cases. Unmarried; 1 death in 4 46-100 cases.

If puerperal fever were sporadic, why would there be more deaths in hospital than in civil practice? It has been said that puerperal fever is epidemic, and the year 1819, is quoted as an example. M. Le Fort considers this assertion as being imaginary, for says he, at the "Cliniques" and at the "Maternité," the proportion of deaths at a given period differs so widely, that the influence of an epidemic must be laid aside. M. Tarnier admits that the ratio of deaths at a given period differs so widely, that the influence of an epidemic must be laid aside. M. Tarnier admits that the ratio of deaths varies singularly, but in M. Le Fort's tables, he notices sudden augmentations in the number of deaths in these hospitals at a given period, which he is at a loss to explain, otherwise than by the theory of an epidemic. Even admitting this however, the reason why the deaths in the hospitals are so much more numerous than in civil practice, still remains unexplained. As infection is a vitiation of the air, which contaminates the bed-clothes, the walls, &c., there is no doubt as to the insalubrity of congregating women together. In general, the larger the number, the more frequent will be the accidents. Contagion is a poison transmitted by a sick to a healthy person. Here the poison passes directly from one woman to another, without the instrumentality of the bed clothes. After all, between contagion and infection there is no very great difference. The miasmata may also be carried to a distance by third parties—surgeons, accoucheurs, &c. Twice it happened to M. Depaul to assist patients, soon after having made a post-mortem examination of women who had died from puerperal fever, and in both cases, these accidents were followed by death. To resume: Contagion may be due to following causes: direct transmission from patient to patient; action of a third party, and a hospital saturated with the poison, which is communicated to its occupants. According to M. Tarnier, contagion. thus understood, acts a conspicuous part, and accounts for the difference in the number of deaths observed in City and Hospital practice.

In the same hospital, the danger diminishes in proportion with the number of days elapsed since the accouchement. A table, giving the result of one year's experience, shows that puerperal fever declares itself, most frequently, in the three first days that follow delivery. It rarely or never sets in after the eighth day. Pregnant women offer great resistance to puerperal fever. In 1862 during an epidemic, M. Pajot, in order to diminish, in the wards of the "Cliniques," the number of *delivered* women, caused to be placed therein a certain number of *pregnant* women. These two categories of patients were in direct contact, one with the other. Whilst the *recently delivered* women died in great numbers, ***not a single pregnant woman*** became sick. Residence in a hospital some days previous to delivery had seemed to diminish the mortality.

The statistics of the "Maternité," from 1860 to 1865, show however, that the deaths are numerous, when the delivery takes place during the eight days which follow the admission into the hospital. A stay of over eight days seems to diminish a little the proportion, which however reaches its minimum, when the accouchement occurs, on the very day of admission. The conclusion to be drawn from the above considerations is as follows: ***It is the hospital***, taken all in all, which engenders an excessive mortality, (mortality due to the crowded state of the wards, the bed clothes, &c., &c.) Outside of the hospitals, where each woman has her own room, which is used only at rare intervals for child-birth, the above influences disappear The mortality of lying-in hospitals, therefore, seems due to the presence of several women in the same ward, and to the repeated occupation of the same rooms and beds by several series of women. As to the question of the prophylactic means to to be employed, Mr. Tarnier remarks, that although in the modern hospitals great attention has been paid to ventilation, &c., still the mortality is as great as it was in the last century. He quotes a curious passage from Tenon, containing the description of a lying-in hospital, where *each bed* held, at times, *four occupants*. The mortality was one in fifteen. At present, at the "Maternité," and other hospitals, there is one death in every nineteen cases. M. Tarnier attributes this figure to the accumulation of a great number of women in the same ward, to the impressions produced by the cries of the children, and the spectacle of neighbours in the death struggle, etc. In some establishments, the custom has been introduced of having several wards used alternately. In Dublin and Rouen the ratio of decease has been in this manner diminished. To render the alternate use of wards at all advantagous, it would be necessary to submit these wards to a thorough purification, each time they became emptied. M. Tarnier concluded that in France, as well as abroad, lying-in hospitals are badly constructed in a sanitary point of view. To diminish the mortality, an institution of this kind must offer the advantages of private practice—each woman must have a separate room, must have no intercourse with her neighbours, and the room must be cleansed, after each occupation. After describing the plan of a hospital, which he had presented in 1864, and answering different objections, M. Tarnier offered the following project in lieu of the former. A long building, divided into rooms, with no communication, one with another. On one side of the buiding there would be a series of windows (say one or two to each room); on the other side, each room would open on to a corridor with a glass roof. These chambers would be subject to alternate occupation. The walls and ceiling being formed of glazed tiles, and the floor covered with a coating of asphaltum, a hand pump would suffice for the purpose of cleansing. M. Tarnier offers this project, as a matter for serious study. When a patient becomes unwell, he would propose to have her placed in a separate building, which would serve the purpose of an infirmary. The attendants, waiters, &c., would not be permitted to communicate with the occupants of the rooms, for whom there would be a special health service. If with the execution of this and other ideas of a similar nature, the mortality continues high, there will then remain a supreme resource—the abolition of lying in hospitals, and attendance upon destitute women in their own homes. The evil being so great, some means must be devised to stop its ravages. The discussion was continued by M. Trelat, who said that in lying-in hospitals, death was ten times more frequent than in private practice. The length of labor had a decided influence upon mortality. Thus, M. Lasserre had proved that labor lasting from 6 to 18 hours gave 2.54 per cent. deaths. Labor lasting over 18 hours gave 11.48 per cent. deaths. Primiparity also played a heavy part in the sad result. Operations have been accused of being among the principal causes of the disasters observed. M. Trelat thinks that in wishing to prove the effect of operations on mortality, the great influence of the nosocomial state has not been sufficiently taken into account. By a series of statistical tables, he proves that operations affect, but slightly, the general mortality, and that on the other hand, the nosocomial influence governs, rigorously, the result of the operations. Ten years observation at the Maternité gives the following as the ratio of decease presented by married and unmarried females:

Married,............................	deaths	6.19	per cent.
Unmarried,..........................	"	8.07	" "

As unmarried women are generally more exposed to want than the former category, misery would seem to constitute a predisposition to unfortunate results. M. Trelat is of opinion, that residence in a hospital previous to child-birth is prejudicial. He gives the statistics of the "Maternité," for a period of eleven years, 1855 to 1865:

Women delivered the day of their admission..	deaths..	7.36	per cent.
" " after a residence of more than one day..........................	deaths.	10.21	"

This result invariably obtained yearly from 1855 to 1865. The conclusion is, that it is dangerous for a woman to live in a hospital before the time of delivery. The one hundred pregnant women who in 1862 were free from puerperal affections, in the service of M. Pajot, were invulnerable during their pregnancy, but after delivery, they fell under the general influence and died in turn. The sojourn of pregnant women in a lying-in hospital is more or less dangerous, according to the sanitary situation. There is a constant connection between the hygienic condition of the hospital and its effects on the pregnant women submitted to its influence. The peculiar character of the mortality, in establishments devoted to child-birth, is its irregularity. The ratio differs from month to month, and from year to year. (Such is not the case in general hospitals.) The cause of this difference must necessarily be as variable as its effects. Atmospherical conditions exert an incontestable influence. From an important series of statistical tables, ranging over a great number of years, the conclusions are that the months, in which the most deaths occur are distributed as follows: April, February, January, March, December, November, October, May, September, August, July and June. The ratio of decease is classed thus: April and October, 6 to 7 per cent.; January, February, March, November, December, May, 5 to 6 per cent.; September and August, 4 to 5 per cent; July and June, 3 to 4 per cent. The months presenting the maxima and minima of deaths are not the same in Paris, Vienna, London, &c., showing thus the influence of seasons.

It is untrue to establish, as an axiom, that many accouchements entail many deaths, and vice versa. M. Trelat admits, with M. Le Fort and M. Tarnier, that the wards are less healthy in Winter, on account of the want of ventilation. M Tarnier said that at the *old* Hôtel Dieu, (Tenon s description of which he gave,) the mortality exceeded very little that observed in the *present* "Maternité." This is true from the month of March to October, during which time generally it is easy to ventilate, but in January, February, November and December, the deaths were much more frequent, at the old Hôtel Dieu, than they are now at the Maternité, which offers modern improvements. In the interior of infected lying-in hospitals, meteorological influences, which become more marked at certain moments, increase the power of the miasmata. April and October, months in which the greatest number of atmospherical changes occur, present also the heaviest mortality. The mortality of the other months is in keeping with their meteorological condition. When certain years affect a mild or severe form, the mortality of lying-in hospitals undergoes that influence in different cities and in different countries at the same time. M. Trelat rejects the idea of epidemics, and looks for the explanation of a high or low degree of mortality in the meteorological conditions which predominate. It may be urged, that this explanation is to be found in *an epidemic*, be its cause of a meteorological or other nature. M. Trelat insists that it is not an epidemic, for an epidemic reigns only in lying-in hospitals. That which is called an epidemic proves to be very severe in certain establishments, whilst it affects others slightly. Besides, these puerperal epidemics, whose power is at times irresistible, in the focus they attack, do not spread outside of this focus.

M. Trelat concluded that puerperal diseases are not epidemical; that they are not due to an agency impossible to foresee, existing in the air and revealing itself only by the havoc accompanying its passage. Neither individual predisposition, nor meteorological influences, are sufficient to explain to M. Trelat the great mortality, whose cause he finds in the *infection* of the hospitals. If the power of this infection be admitted, it is easy to understand why metritis, peritonitis, &c., are always to be met with in hospitals used for child-birth. When the sanitary situation appears to waver and fluctuate, this is due to the influence of infection, exaggerated from time to time by different causes. When this state of things persists, the number of the sick increases—these patients themselves become a fresh source of infection, capable of causing other delivered women, previously in a favorable condition, to become the prey of contagion. Herein lies the cause of these pretended epidemics which exist, isolatedly, in *one* lying-in hospital at a time. To resume: permanent infection, accidental contagion, here are the scourges. Infection does not mean the production of miasmata, but merely the power which the walls, furniture, &c., possess of retaining these miasmata. If *contagion* is all powerful, during epidemics, the indication is evidently to crush it in the bud. In lying-in hospitals, the mean yearly mortality from infection is from two to five or six per cent., and this is the case for years exempt from epidemics. Again, it has been observed, that the longer the time elapsed, since the opening of such an institution, the heavier is the mortality within its precincts. From various statistics in his possession, M.

Trelat concludes that the efforts to diminish the mortality have been more or less successful, according to the manner in which *infection* has been attacked. It is difficult, as M. Tarnier says, to prove the reality of contagion in a hospital. for what some assert is *contagion*, others affirm is an *epidemic*. M. Trelat believes that contagion may be transmitted by the accoucheur, &c. Facts of this nature are fortunately rare. A series of observations collected in his service at the Maternité, during the past few months, renders M. Trelat additionally certain of the influence of contagion. From the preceding facts, he comes to the following conclusions. In lying-in hospitals, certain categories of women are generally more exposed than others to puerperal diseases; certain meteorological conditions favor or diminish the production of these diseases. These facts do not, however, account for the great mortality, the explanation of which is to be sought for in infection and contagion. Infection and contagion must be combatted by general prophylactic measures. To the first, scrupulous cleanliness is to be opposed. For the latter, there is only one remedy, the immediate separation of the healthy women from their suffering companions. This separation must be had, whatever be the cost of distinct buildings, &c. Each *sick* woman should, if possible, have a room to herself. An establishment in which contagion obtains the mastery, must be quickly abandoned. M. Trelat does not agree with M. Tarnier, in thinking that every *delivered* woman should be placed in a separate room. Though this plan would no doubt prove advantageous, still there are many difficulties in the way of its execution, and in the hospitals of Dublin and Rouen satisfactory results have been obtained, as mentioned above. M. Trelat criticises the new constructions at the Hôpital Cochin, and states that at the Maternité, in 1865, an attempt to purify the hospital had at first been followed by a decrease in the number of deaths, but that in the early part of the present year, the mortality reached the figures 27.18 per cent. The conclusion is, that the improvements effected in 1865, were insufficient, and only opposed a temporary barrier to the evil. The construction of a special building to serve the purposes of an infirmary would permit the separation of the sick from the healthy women, and as such a measure would increase the number of beds in the wards used by delivered women, it would permit more readily the alternate use of these beds, etc.

M. Leon Le Fort gives his approbation to the remarks of M Tarnier and Trebat. In the work recently published, he endeavored to prove, from abundant statistical sources, the difference in the mortality presented by accouchements in the hospital in London, to which there is attached a domiciliary service for accouchements; during a period of seven years, the proportion has been one death in 331 cases. In 1861, at the Academy of Medicine, this result was not credited; it is now, however, placed beyond a doubt. M. Le Fort denies the influence attributed to epidemics, and says that puerperal fever is contagious, and that that which is called an epidemic, and which is so frequent in lying in hospitals, is due neither to the vitiation of the air, nor to an evil genius besetting the hospital, but to contagion, unrestrained, if not favored by a defective organization. It may be objected, that this contageon does not always manifest its ravages; that at certain times, nearly every delivered woman falls sick, whilst occasionally a case of primitive puerperal fever exists, without affecting the neighboring women, even those placed in the same ward, and that an epidemic increases of itself, when all the means employed had proved powerless to exempt delivered women from its influence. The answer to these objections is, that a contagious disease is like a seed, for whose germination a suitable soil, and proper biological and atmospherical conditions are necessary.

M. Guyon has published an article, in which he says epidemics are preceded by an unfavorable sanitary state in the establishments where they are soon to manifest their presence. From the statistics collected in M. Le Fort s work, on lying-in hospitals, this assertion of M. Guyon seems erroneous, for the mortality is observed to pass suddenly from 1 to 14 per cent., from 0 to 12 per cent., from 5 to 25 per cent. The epidemic has set in without giving warning of its approach. The apparent conclusion is, that contagion or infection in badly constructed, or in well constructed hospitals, makes the mortality in hospital practice far greater than in civil, and that in hospitals, as well as in private dwellings, meteorological influences affeot, conspicuously, the death rates. THOS. LAYTON, ELIZABETHTOWN, N. C., June 1856.

I notice, in the March number, a case of gun-shot wound of the chest, treated by "hermetically sealing," which brings to my recollection, a case that came under my observation, at Howard's Grove Hospital If it will add anything towards accumulating facts, in regard to this treatment, I will give it.

Private W., 8th Alabama regiment, received a wound in action near Richmond, in September 1864, a minnie ball entering the right chest, just above the nipple, making its exit near the spinal column. He was brought immediately to the hospital. Was troubled a great deal by cough; expectorated blood freely, and at each expiration, blood gushed from the wound.

I hermetically sealed each orifice, applied a tight bandage to the chest, and kept him confined to the bed. In a very short time, the painful cough was allayed by full doses of morphia, and he made no complaints whatever. The wounds healed, without suppuration; and in three weeks he was allowed to go home on furlough. There was no effusion whatever in the pleural cavity, and never at any time, much fever. R. T. L.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

I.—REFLEX PARALYSIS—ITS PATHOLOGICAL ANATOMY AND RELATIONS TO THE SYMPATHETIC NERVOUS SYSTEM. By M. GONZALES ESCHEVERRIA, M. D., University of Paris, Physician to the Charity Hospital, New York, etc.

This valuable work, is mainly a reprint of a paper which appeared originally, in the New York Medical Journal, and which has been read with pleasure, by the many supporters of that valuable periodical. The work is embellished by beautiful engravings, of microscopic drawings, which were, by Baron Eglofstein's recent method, photographed on steel.

The author has divided his subject into two parts or "chapters," as they are termed. The first chapter is devoted to an examination of the definition, etiology and pathological anatomy of reflex paralysis.

The generic term reflex, is applied by him, to that peculiar and extensive class of paralyses, called functional, idiopathic, asthenic and peripheral. The name does not imply contraction in the blood vessels of the spinal cord, as a necessary initial cause of paralysis, nor subsequent absence of functional change in the nervous system, as its effect. The views advocated in this chapter, are illustrated by a series of interesting and judiciously selected cases.

The second chapter, which is decidedly the more interesting and instructive, is devoted to a discussion of the influence of sensibility of the sympathetic system, on the production of reflex paralysis; inordinate sensibility; changes undergone by the muscles and condition of the urine peculiar to the disease. The whole pathology of reflex paralysis is considered, by the author, as being induced through the agency of the sympathetic system, this assumption being based on the intimate connections existing between the nerves usually affected, and the ganglionic system. There are many interesting cases cited of paralysis subsequent to attacks of symptomatic fevers, visceral congestions, etc. The special case of paralysis, supervening upon pneumonia, is particularly interesting.

The author evinces a very thorough knowledge of the subjects discussed, and succeeds in developing an entire confidence and sympathy on the part of the reader The style of the work is excellent, and the phraseology adopted, is conspicuously free from those inexcusable pedantries, which are rapidly and justly exposing American Professional writers to satire and ridicule. It is refreshing to see a book written with such excellent judgment, and to read interesting and instructive pathological views, presented in chaste and excellent English. For this valuable work, and for the rigid avoidance, in its preparation, of puerile, fashionable and extravagant fantasies in philology, the author is entitled to the gratitude and appreciation of the Profession.

CATALOGUE OF THE MEDICAL COLLEGE OF VIRGINIA. Session of 1865-66. Summer Session of 1866, and Announcement of the Session of 1866-67.

This Catalogue has just been received. The number of graduates in March last was 19, in a class of 38. The number of matriculates for the present Summer Session is 22, being little more than a half of the number constituting the Winter Class In the redemption of a pledge given, the Winter course will in future be extended to five months. This announcement will be welcome and satisfactory to all. Nothing is said as to lengthening the future Summer terms. As this is one of the Institutions which confers the degree of the Doctorate, after an attendance of two courses of lectures, *delivered in eight months of a single year*, any extension of the period of pupilage is important; tending to diminish, per tanto, the deficiencies and dangers, deemed by many, inseparable from the policy recently adopted. When a Student who enters a Medical College, for the first time, in October, is allowed to graduate in the succeeding August, (two months of this period being spent as a vacation,) the members of the Profession will learn, with satisfaction, of each addition, however small, that is made to the period of the lecture term.

Criticism of the Press, unless impartial and independent—unless unfettered by the social and personal ties that so frequently bind and so naturally bias it—is unworthy of either respect or confidence. Such criticism is difficult and unwelcome, but, as a duty, it cannot be honestly or honourably avoided. It is in this spirit, that the policy recently adopted by this Institution is publicly, as it has been privately, unqualifiedly condemned. It is believed to be dangerous and leveling in its tendencies and fatal in its results; fatal to the teacher, to the Student, to the Institution and to the best interests of the Profession. Nothing could, in this connection, cause more surprise, than that it should receive either the support or confidence of the Medical Public. Comparing the present Class, in its numbers, with the last, this policy may justly be regarded as having been already condemned. The true friends of the Institution reasonably desire that such a policy should fail, though it is not probable that it will be abandoned, without a fair and full trial.

While most Institutions have increased their former prices, at least one third, this College adheres to the old terms asked, before the present disturbed condition of the currency. This liberal and generous spirit will receive just and general commendation.

The Hospital advantages are monthly increasing, and now that invalid labour is necessarily driven to Hospitals for relief, Students may expect to find here abundant and increasing material for clinical observation and study.

The requirements for graduation are insufficient, and those in regard to dissection are vague and indefinite. The requisites for matriculation are hospitably restricted and inviting.

It is to be hoped that this Institution will establish a needed reform in regard to the particulars herein mentioned, for with such a reform, and with the advantages specified in the Catalogue, it may fairly anticipate a reasonably prosperous future.

MISCELLANEOUS.

Air Cooler and Purifier.—While pursuing, last Winter, in New York, some investigations on the old subject of heating and ventilation, my attention was directed to an apparatus for cooling and ventilating. It was said to be in operation at the Bellevue hospital, and to have received commendatory notice in letters to the inventor, from Professors Flint and Doremus. Failing to find either of these gentlemen, I sought the inventor, and his son accompanied me to the hospital, where two of the "purifiers" were in operation.

The apparatus consists of a tight box of wood, about six feet in height, and fifteen by twenty-three inches on the sides. It is placed at the head of the patient's bed. In the box are shelves or pans. The lowest contains lumps of quicklime. The next above, which is of wire netting, is filled with small pieces of charcoal, and one in the upper part, under a metallic roof, holds small fragments of ice. Air is admitted to the lower part of the box by a side opening. Passing over the lime, which absorbs some of its moisture, the air becomes slightly warmed, and rises through the charcoal to the top of the box. Here, coming into contact with the ice, it is cooled, falls in an accelerated current, through a flue, and flows from the box through another opening, just above and on one side of the patient's head. A slight frame supports, around the bed, a curtain, which is tucked under the mattress to prevent the cooled air from flowing off to the floor. Here, with his curtains, the patient is immersed in a bath of pure and cool air about thirty inches in depth.

This is a very meagre description of a very simple apparatus, and one would hardly expect any great effect from such a combination of such materials. It was, therefore, with great surprise, I heard from the patient the great praise he bestowed on what he called his "blower." His remark was, that "the air from it was as cool and fresh as if it came from an open window," and he complained bitterly of the negligence of the nurse, who sometimes failed to give him a full supply of ice for the night.

The great difference, however, between the temperature (and other sensible qualities) of the atmosphere, outside and inside his curtain, as roughly tested by placing the head and hand for a few moments inside the enclosure, was quite sufficient to satisfy one that the patient had sufficient cause for his somewhat enthusiastic eulogium.

If further experience demonstrates that this simple apparatus is really what a cursory inspection leads one to believe—if the evidence of the senses is corroborated by the more severe tests of science—one sees, at a glance, its wide application to the wants of our patients in hospital and in private practice. They have received a boon of incalculable value in this simple contrivance.

The theory of its operation is plausible. We all know the deodorizing and disinfecting properties of charcoal; its power to absorb from the atmosphere and destroy the ammoniacal, sulphurous organic compounds, which render the wards of a hospital so unpleasant and unhealthy, each cubic inch of charcoal taking up and destroying ninety cubic inches of ammoniacal gas, eighty cubic inches of sulphuretted hydrogen, and considerable quantities of other deleterious compounds. We also know that quicklime has a great affinity for carbonic acid, every one hundred pounds absorbing twenty-four pounds of this gas; and that it absorbs and decomposes sulphuretted hydrogen, the compounds of ammonia and other products of animal decomposition. The other material used—ice—presents, on its surface, a thin layer of water, which is another absorbent of sulphuretted hydrogen and ammoniacal gas, taking up 780 times its bulk of the latter.

We have, then, in this apparatus, three great absorbents of the disgusting and deleterious products of decomposition—three of Nature's great purifiers—and, theoretically, this combination ought to result in a great purification of any current of air thoroughly exposed to its action:

The problem was to force a current over these materials, after they had been selected, and to collect and retain, where it was wanted, the air thus purified. The inventor has here availed himself of the natural laws according to which warm air rises and cool air falls. He claims that it supplies from fifty to eighty cubic feet of purified air every minute, and that "thirty pounds of ice will blow sixty cubic feet a minute for eight or ten hours in a warm night;"

and that "the expense of materials (ice, charcoal and lime) for providing a steady current of fifty cubic feet a minute, perfectly purified, and in the hottest weather cooled 20°, and properly dried, has been less than two cents an hour."

If the half of this should prove true, one need not lie in gasping, sweltering wakefulness through the tedious hours of a smothering Summer night, sighing for a breeze from the ocean or the mountain. If, again, the current flowing over their beds is so cooled and so purified, we need no longer send our little cholera infantum patients to the mountains, because, in fact, the mountain has come to them. The cool freshness of the snowy peak, even, may be made to surround and impart to the sufferer its tonic virtue, even in the heart of a crowded, heated city.

By changes in the materials through which the air is made to pass, it could be adapted to many varying wants of our patients. The cooling, alone, would be productive of great benefit and comfort in many cases. There is no one of us, however healthy, who would not feel better for a night passed comfortably in a moderate temperature, after the exhausting heat of a midsummer day; and probably very many cases of the diseases so prevalent during the excessive heats of Summer might be prevented by the use of some such means as are here offered.

The cooling is, however, quite secondary in importance to the purification; and if the fact of purity can be established, one would not incline to discuss the point of temperature. For a field is at once opened far wider than the narrow limits of a single bed in a hospital ward or private house. One naturally asks why a whole ward should not be purified; and if one ward, why not a whole hospital or dwelling-house? Then, why should not those awful scourges that visit us in the forms of erysipelas, pyæmia, gangrene, diffuse suppuration, puerperal fever, and the whole foul race that breed and revel in a noxious atmosphere, be forever banished—charred and calcinated and frozen out of existence.

May not this little simple box contain the germ of an apparatus easily adapted to the purification of a whole hospital? May it not be an anti-Pandora-box? Means less expensive than ice could be used for establishing the current, and also for cooling it. And, if the lime and charcoal failed to eliminate from the air the germs of those troublesome diseases which so infest our hospitals at times, might they not so modify the atmosphere as to destroy their proper nidus, and thus render them abortive? or prevent germination and development of fungus or animalculæ by the destruction of their proper and specific pabulum?

I trust this little apparatus may have among you in Boston the fair trial to which its claims and its apparent success seem to entitle it, and that among the scientific men collected about your hospitals some may find leisure to examine and report upon these claims, and that speedily. W. H. P.—*Boston Med. and Surg. Journal.*

The following is described as an efficient method of securing the action of mustard externally, in cases of cholera:

A dozen porous bricks, previously placed in boiling water till they have become thoroughly heated and saturated with moisture, should be covered with pulverized mustard of the best quality, and arranged on each side of the patient from head to foot. The patient should be then enveloped in thick blankets. The steam from the bricks, carrying with it the active principle of the mustard, produces a most decided impression upon the whole surface of the skin. There is scarcely any method of applying mustard, which will produce so rapid and thorough stimulation as this.—*Chicago Medical Journal.*

DEODORIZATION AND DISINFECTION.—Dr. T. H. Barker, in a lengthy and interesting article (Hasting s Prize Essay, for 1865,) published in the *British Medical Journal*, January, 1866, arrives at the following conclusions: For the sick room, free ventilation when it can be secured, together with an even temperature, is all that can be required. For rapid deodorization and disinfection, chlorine is the best agent known. For steady and continuous effect, ozone is the best agent known. In the absence of ozone, iodine, exposed in the solid form to the air, is best. For the deodorization and disinfection of solid bodies that cannot be destroyed, a mixture of powdered chloride of zinc with sawdust is best. After this, a mixture of carbolic acid and sawdust, ranks next in order; and, following on that, is wood ashes. For the deodorization and disinfection of infected articles of clothing, etc., exposure to heat at 212° Fah. is the only true method. For the deodorization and disinfection of substances that may be destroyed, heat to destruction is the true method.—*Medical Record.*

BROMIDE OF POTASSIUM IN SLEEPLESSNESS CONSEQUENT UPON UTERINE IRRITATION.—It is better always to try this agent, before resorting to narcotics, in the wakefulness which is often associated with disease of the uterus or its appendages. Indeed, in some instances it will succeed in inducing rest where the others fail, and beside, the liability of these to disturb the digestive organs, is sometimes a serious objection to their administration. Without detailing cases, I would simply state, that I have recently found remarkable benefit in the condition mentioned, from the bromide of potassium—the dose should hardly be less than ten grains, and may be twenty, or more.—*Cincinnati Journal of Medicine.*

Aniline as a Test for the Adulteration of Linen by Cotton. A method of using aniline as a means of ascertaining whether or not the linen in any fabric is mixed with cotton, and, if so, in what proportion, is given by Bottger in a recent number of the "Chemisches Central Blatt." At the corners of one end of a strip of the fabric to be tested, he loosens the threads, so as to expose both the warp and the woof. He then dips that end of the strip in an alcoholic solution of aniline red, washes it in water, until the washings are colourless, and then places it in an aqueous solution of ammonia. If any cotton is present, the ammonia will discharge the colour from it, without touching the colour of the linen portion. The linen threads will remain of a bright rose colour, but the cotton threads will become quite white.—*Scientific American.*

MEDICAL NEWS.

The Medical Staff is now in process of organization in Italy.—The convents will very generally be used as hospitals. In Milan 750 nurses are inscribed for hospital service, including the names of many ladies of good family; and Sisters of Mercy have already been sent to Piacenza to perform the duties of nurses. Miss Nightingale, in a letter recently addressed to an Italian gentleman, speaks most highly of the Italian hospital organization during the Crimean war.

Orders were recently given to the police in London, to permit the carriage of Dr. Jenner, the Queen's Physician, to follow in the Royal procession en route to the opening of Parliament by Her Majesty.

The Emperor Maximilian has requested the Empress Eugenie to accept a medal, on account of her courage in visiting the cholera wards of the Paris hospitals.

Professor Brande, D. C. L., F. R. S., the veteran chemist, died at Tunbridge Wells, England, on the 11th February, at the ripe age of eighty years.

It is said that a strong feeling exists in Paris in favor of making the studies and examination of Students more practical than they are at the present time.

EDITORIAL.

After careful inquiry and investigation, it appears that there are but few City or County Medical Associations now in operation, throughout the Southern portion of the United States. The State Associations are practically suspended, and, with the exception of North Carolina and Georgia, no States seem to have moved in this matter. These facts are a source of extreme regret to every true Physician, for he necessarily feels a deep and abiding interest in the Past, Present and Future of Medicine and knows that, as a Science, nothing is more calculated, than a system of association, to exalt it or to make it fruitful and efficient. Those discharging this high and important duty, elsewhere, of associating themselves together, for Professional advancement and Public safety, cannot but regard all who are content to rest in idleness and apathy, as recreant in their duty and unworthy of their calling. The citizens of every Country, through the happily universal medium of the Press, are daily reading reports, consequent upon the conventions of such bodies, and when conscious that, in their own States, nothing of medical interest or importance is examined and analyzed, they justly regard all Physicians therein resident, as wanting in energy, in zeal, in honesty of purpose and in all of those qualifications and qualities that should dignify and adorn the true representatives of Science. The conviction with them is just, reasonable and inevitable, that those to whom their lives and the lives of all dear to them are entrusted, in sickness, manifest a singular and inexcusable indifference to the interests of science and the claims of society; that they are regardless of their Professional welfare and culpably negligent in the origination and development of a State Medical literature. What is publicly known of the true nature and history of those anomalies in disease, witnessed by many during the few past years. With a comparatively silent Medical Press and temporarily extinct Medical Societies, what has become of this record? How shall it be completed and elaborated? In what other way, than by the reëstablishment of Medical Societies, in which each contributes a suggestion, an explanation or a fact, until, as the result, there are presented those valuable Professional Mosaics, made up of gems, which valueless if separated, contribute, when aggregated, to make delineations that are suggestive, instructive and harmonious. The Press, though powerful and inestimable as a teacher, disseminates only what was originally elaborated by the writer, but how many who, in the study and individual analysis of a subject, are perplexed by shadows and obscurities, find that in general examination there is a light, before which obscurities vanish and shadows disappear? What better corrective than Medical Societies, is there of that frequent and general ignorance in regard to varied characteristics of many diseases, as presented in opposed sections of different States, or even of a single State? Who will contend that the therapeutics of a tidewater region are applicable among the mountains? In what better way, than by Societies, can there be made known and intelligible any anomaly or peculiarity in the cause, nature, history or treatment of endemics, that are so seldom seen in a similar livery?

To rely exclusively upon the information that is obtained by the bedside phenomena, witnessed in individual practice, is to be committed to a future of difficulty, danger and distress. In therapeutics and pathology, as in physics and philosophy, the classic injunction, vis unita fortior, is eminently safe, appropriate and judicious.—Diseases, with but few exceptions, whether endemic, epidemic or sporadic, are impressed by causes peculiar to localities, which form their temporary or permanent habitats, and though now familiar with them and their treatment, as detailed in the dogmatic language of authorities, (often incorrect and unreliable,) what is to be correctly known of these diseases, as modified by agencies peculiar to the varied sections of each State? All are supposed to be familiar with those ordinary diseases, daily treated in individual practice, but medical testimony, experience and common sense teach, that diseases, and necessarily their treatment, are undergoing constant modification, and if familiar now, without making a judicions use of those means placed at the disposition of all, what guarantee is there that any one will remain so? Proscription of the lancet, not many years since, regarded as heterodox and unjustifiable in the treatment of the pulmonic phlegmasiæ, has become orthodox, imperative and universal. Heresy has become the true faith, and the condemned heretic is now the honoured and acceptable teacher. This marvellous change did not first become manifest, in standard works and in the lectures of great teachers, but in the practice of those who first discussed it, in Convention and Association; in those small Societies, which are as crucibles, in regard to all that proves to be sterling and genuine.

In communities whose population must rapidly increase, not only from natural causes, but by immigration, spontaneous and encouraged, it is evident that there must be the coincident advent of comparatively new and unfamiliar diseases. When these appear, is there not great benefit to be derived, from ascertaining the successful treatment of those first called upon to oppose their march? Let not a vain assumption of ability to cope with disease find any one unprepared, "when the pestilence which walketh in darkness and destroyeth at noonday," is abroad in the land. The chief preparations for all are consultation and comparison of judgment and experience. Prudence suggests that the Professional "lamps" should be "well trimmed," and among these lamps are to be recognized those Associations and Societies which are, surely, calculated to shed light upon the darkness and obscurity of disease.

The importance of such Associations is felt and practically recognized at all of the great centres of Europe and America.— In London and Paris, Berlin, Vienna, New York, Philadelphia, Chicago, New Orleans, and wherever are to be found, in active work, those deservedly distinguished and prominent on the roll of fame, Medical Societies are not only thoroughly organized, but are highly appreciated and in effective operation. Great men, in great places, attend regularly, working zealously and well. It is only in smaller Towns and Villages, that there are to be found those smaller men who are guilty of the foolish affectation of deriding or depreciating the advantages of public Professional Associations; who, if members of such bodies, manifest, by a uniform failure of attendance, a culpable disregard of their assumed obligations; a disregard of the success of organizations, for whose creation, development and continuance, they made themselves not only voluntarily, but publicly responsible.

As is cheerfully and triumphantly declared, by many derelict members, who ludicrously aspire to the spirit of prescience or prophecy, such organizations often become inoperative or extinct, but they must know that this discreditable result is due solely to such men; to a violation of those honourable obligations, that can only be fulfilled, by the good faith and strength of character existing in those who voluntarily contracted them.

Every member of an Association or Society is justly and undeniably responsible, in part, for its vitality, development and efficiency. It is certainly neither generous nor just, in the practical operation of such an organization, that the avoidable, as well as the unavoidable labours, should be discharged by a few, while some continuously absent themselves, some passively attend, and others inconsistently, either positively or negatively discourage discussions, that constitute the chief object and value of such Associations.

Many singularly deride the utility of discussing subjects, in regard to which the information possessed is incomplete or unsatisfactory, not realizing, apparently, that this constitutes the true field of labour, and that assembling for the repetition of admitted facts would be both ludicrous and absurd. It matters not how humble may be an organization or its members, discussion should be unabridged and should be uniformly encouraged and developed by all. History furnishes abundant evidence of two important and relative facts: that the incomplete conceptions of the great have been successfully elaborated by the humble and obscure, and that the suggestions of the unknown and unpretending have been triumphantly developed, by the accomplished and wise. The brilliant flower is not infrequently found growing by the retired wayside, and in the etiolated bud, increased light develops its beauty and its glory. The immortal Watt, in his elaboration of the steam engine, failed to solve the problem that, when analyzed by an obscure lad in the lowlands of Holland, gave to this wonderful mechanism its perfection and power. Huygens, after his abstruse equations concerning oscillating bodies, had his pendulum finally regulated by the humble artisans of England, and Morse, in his triumphant annihilation, comparatively, of time and space, has seen his mechanisms improved, by his subordinates in science and in sense. On the other hand, the primitive conceptions of Faust and

Finniguerra were triumphantly developed by Schoëffer and Caxton, and the art of printing, from its obscure origin and unsatisfactory adaptation, has become the mental light and blessing of a world. The same principle through which the Arcadian Shepherd enchained and controlled his herds, now makes vocal with harmony the groined arches of cathedral aisles.

These illustrations may be continued indefinitely, but they all teach the same lesson, that the discoveries of the great are often perfected by their humble followers, and that genius, not infrequently, crowns, with fame and success, the crude conceptions of the illiterate and unlearned. That the views of great discoverers and teachers in medicine may be elaborated and developed, even by obscure bodies, and that casual suggestions emanating from these may become triumphs and blessings. Let debate then be encouraged, and let all work with zeal, with faithfulness, and with faith.

Though the debates in Societies can not be compared with the invaluable papers, originating from such a source, it cannot be denied, that in the aggregate, they are instructive and suggestive. No one, however cultivated, can attend, for any material length of time, the meetings of a well organized Society or Association, without being consciously instructed or improved, and without pleasurably realizing that his recollection of important medical facts has been unquestionably stimulated and refreshed.

Even granting, however, that the Professional advantages of such bodies are not sufficient to commend them to general confidence and support, there are social and personal reasons, which should guide and influence all. Such meetings usually, if not invariably, originate and develop valuable friendships; remove prejudices; awaken admiration, and increase that necessary respect, on which all enduring esteem is founded. Frequent interchange of personal and professional experience and opinion is almost always productive of beneficial and happy results. To the misanthrope and ascetic, these considerations may be subordinate and valueless, but to those who desire and prefer to think well of their associates, they are specially welcome and important.

The object of these few pages is not to indicate the advantages of

Association for these advantages are better known to the Profession, but the opportunity is embraced of reminding the very many now working separately and apart, of the necessity for organizing; of appealing to them to effect these organizations promptly and harmoniously; and, finally, to invoke that concert of action, which, in all important enterprises, is both the herald and guarantee of success.

Metropolitan Board of Health of New York City.—"Amphora cæpit institui; currente rota cur urceus exit?" At a recent meeting of this Board, it was specially "directed, that Homœopathic Physicians be distinctly invited to take part in the care of patients suffering from cholera," etc., and collected by the Board for treatment.

This action will, justly, subject this Board to most unsparing condemnation. It would be equally consistent to invite the Hydropath, the Oinopath, the Electropath, and the endless number of those who are practical representatives of that Protean charlatanism which is both the wonder and stigma of the age. The Board should go further in their Quixotic spirit of ludicrous philanthrophy, and set apart a ward for each school of empiricism; or a bed for the self-appointed patentee of the infinite nostrums, whose merits furnish the fruitful theme for half-starved artists, brainless lyrists, and peripatetic impostors. If one policy be just or excusable, so would be the other, for mutatis mutandis, the various schools of Empiricism are equally entitled to corporate respect and scientific consideration. "Qui stultis videri eruditi volunt, stulti eruditis videntur."

Editorial Notices of Advertisements.—Many advertisers, whose claims are justly entitled to support and confidence, have frequently applied for editorial notices, in their behalf. These applicants are informed, that it is against the rules adopted, in the business management of this Journal, to comply with their requests. As is manifest, it would be unjust to others to give increased publicity to one advertisement. The entire policy of editorially directing the attention of the Public to advertisements is believed to be injudicious and unjust, and when this is done, for a pecuniary consideration, as is often the case, the transaction becomes morally, if not legally, criminal and offensive.

The New Orleans Medical Record, edited by Bennett Dowler, M. D., and S. R. Chambers, M. D., and the Southern Medical and Surgical Journal, edited by Joseph Jones, M. D., for June, have just been received. These Journals, exteriorly, are commendable, and interiorly inviting and instructive. With a continuation of such excellent management, they may certainly expect a full and generous support. They are placed with pleasure on the exchange list.

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A respectable number of the best writers in this country have promised their support, (an ostentatious display of names is avoided,) and as the Editors offer to pay, at the HIGHEST JOURNAL RATES, for ARTICLES, ESSAYS, CORRESPONDENCE and REVIEWS OF RECENT WORKS, it is hoped that the original department of the JOURNAL will be entitled to respect and confidence.

The pages of the JOURNAL are devoted to Original Articles, a Retrospect of Medicine and Surgery during the late war, an Eclectic Department, (which is a chief feature of the JOURNAL,) Reports of Societies, Associations, Hospitals and Clinical Lectures, Foreign and Domestic Correspondence, Reviews and Bibliographical Notices, Medical News, Editorials, Miscellaneous Matter, etc.

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Contributions for publication must bear the signature of the writer, and must be communicated to this Journal exclusively.

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MATRIMONIAL.

Married, on May 15th, at the residence of Dr. M. C Whitaker, near Enfield, N. C., by Rev. W. H. Wills, Dr. CHARLES GREGORY and Miss MATTIE R. DAVIS.

Married, on Sunday, June 17th, at the residence of the bride's mother, by the Rev. A. Wright, Dr. A. WOLFE, of Orangeburg, S. C., and SALLIE L. McDOWELL, of Charleston.

BOOKS, JOURNALS, ETC., RECEIVED.

Diseases of Females. By F. W. Von Scanzoni. From the Publishers.

Cholera; its Characteristics, Treatment, etc. By William B. Fletcher, M. D. Rob't. Clark & Co., Publishers. Cincinnati, Ohio. From the Publishers.

Clinical Lectures on Amblyopia and Amaurosis. By A. Von Graefe. David Clapp & Son, Publishers. Boston, Mass. From the Publishers.

Small Pox; its Pathology and Treatment. By Andrew Nebinger, M. D. Collins, Publisher, Philadelphia.

Catalogue of the Medical College of Virginia, Session 1865–66. Chas. H. Wynne, Publisher, Richmond, Va.

On the Progressive Locomotor Ataxia; its History, etc. By Robert Bartholow, A. M. M. D. Robert Clarke & Co., Publishers, Cincinnati, Ohio.

The Herald of Health and Journal of Physical Culture. Miller, Wood & Co., Publishers, New York.

The following exchanges for June have been received: London Punch; Littell's Living Age; The Pacific Medical and Surgical Journal; Medical News and Library; London Lancet; Boston Medical and Surgical Journal; Chicago Medical Journal; Philadelphia Medical and Surgical Reporter; St. Louis Medical and Surgical Journal; Canada Medical Journal; American Journal of Pharmacy; Buffalo Medical and Surgical Journal; American Druggist's Circular; The New York Journal; Dental Cosmos; Memphis Medical and Surgical Monthly; The Cincinnati Journal of Medicine; The Galveston Medical Journal; The Atlanta Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; St. Louis Medical Reporter; The New Orleans Medical Record; Southern Medical and Surgical Journal.

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The Richmond Medical Journal.

Vol. II. August, 1866. No. 2.

ORIGINAL COMMUNICATIONS.

Art. I.—Accidental and Congenital Atresia of the Vagina, with a Mode of Operating for Successfully Establ'shing the Canal. By Thomas Addis Emmet, M. D., Surgeon to the Woman's Hospital, New York. Read before the New York Obstetrical Society June 19th, 1866.

After a review of the literature on this subject, we learn that the result of Surgical interference for the permanent relief of accidental occlusion, a consequence of inflammatory action, is favourable in proportion to the extent of the vaginal tract involved, and the risk of inflammation, as a sequence, is generally in the same ratio.

We find, moreover, but few congenital cases recorded, where the canal has remained permanent after an operation, and from the frequent occurrence of pelvic inflammation or peritonitis resulting, the operation for an artificial vagina is now universally regarded as one of a very grave character.

It is my belief, that could we learn the after history of the cases so recorded, success would prove an exception to the rule. For it has been my experience, without an exception, that the operation has eventually failed where the parts have been divided by means of the knife, in spite of every effort to keep the surfaces separated by bougies. or any other means which would be resorted to for the purpose. Without some portion of the mucous membrane has remained intact at the upper part of the canal, the plug will be gradually expelled by adhesion of the surfaces from above downwards, until the original condition is attained. When a section merely of the canal has been divided, the required diameter can be preserved so long as a bougie is retained, but after discontinuing its use, the incited tissue will gradually contract, until the false passage becomes obliterated or reduced to a mere sinus.

As a result of a large experience in operating for vesico and recto vaginal fistulæ, I became impressed with the fact, that when in the preparatory operations it was necessary to divide extensive bands of adhesions, before the edges could be approximated, inflammation rarely followed a division by scissors or laceration by means of the fingers. In addition, it was observed that with less hæmorrhage, the vaginal tissue divided by scissors or lacerated, had not the same tendency to contract during the process of healing, as when separated by means of a clean cut.

I became so fully impressed with these facts, that I have for several years discarded entirely the use of the knife in all operations about the female pelvis, wherever it is possible to do so. I am aware that the impression generally received is in opposition to this experience, that the risk of inflammation, and I may add pyæmia, is lessened by laceration of the tissues, but a large number of the Profession have witnessed the practical results in the hospital, and its records will bear me out in the assertion.

By the history of the following case, a comparison between the two modes of operating, is strikingly illustrated in the result:

Mrs. B., of Newark, N. J , was admitted to the Woman's Hospital, April 27th, 1863, with a vesico-vaginal fistula following her first labour of five days' duration and delivery by forceps. Although three years had elapsed since her confinement, there had been no return of menstruation, and with extreme prostration of the nervous system, her general health had become much impaired. On introducing the finger between the labia at the depth of less than an inch, it passed directly into the bladder through a transverse fissure, situated at the neck, about two inches in length. From the posterior margin of the fistula, the vagina was entirely occluded. Nothing definite was gained by a rectal examination beyond the fact, that pelvic cellulitis had previously existed, and the position of the uterus could not be detected.

May 10th.—With the patient etherized and lying on the back, two deep incisions outwards and downwards were made on each side of the fourchette, through the cicatricial band, at the outlet of the vagina. The posterior edge of the fistula was seized by means of a tenaculum, and being drawn upwards by an assistant in the direction of the pubes, was put on the stretch. The vaginal tissue was then carefully divided laterally, with a scalpel, in the supposed direction of the uterus. As the canal was opened up, the thumb of the left hand of the operator was advanced so, by pressure backwards, as to put the posterior wall of the vagina on the stretch, and with two fingers of the same hand in the rectum as a guide, the relative thickness of the rectal septum was thus preserved. A depth of nearly five inches was gained, when the hæmorrhage became so excessive, that a farther attempt to reach the uterus was abandoned. A hollow glass plug, five inches in length by two in diameter, was introduced and retained in situ by a perineal bandage. The patient was placed in bed, and after the effects of the ether had passed off, opium was administered. For several days she suffered much constitutional disturbance, irritability of the bladder, and a feeling of soreness over the lower portion of the abdomen. The bladder was emptied by means of a gum elastic catheter, without removing the plug, as the retention was perfect in consequence of its pressure. The plug had controlled the hæmorrhage, and was not removed for several days, until it became loosed by suppuration. Daily large vaginal injections of tepid water were used until her discharge.—At the end of ten days it was found, that by pressure of the vaginal plug, absorption of the tissue had gradually taken place, until the cervix could be felt through a thin septum, a little to the left and about four inches from the mouth of the vagina.

June 3d.—The septum was caught up on a tenaculum, and divided by scissors, into a small cavity in front of the neck, thus opening the vagina, which had been closed by adhesion throughout, to the cervix uteri, without actually involving the latter.

June 26th.—The artificial vagina being now healed properly, the edges of the fistula were pared by scissors, and approximated with eight interrupted silver sutures. The edges of the fistula were sloping, as is usually the case when situated at this point, and although two inches long on the vaginal surface, receded until its actual length was not more than half so much at the entrance to the bladder. On the ninth day the sutures were removed, and with the union perfect, she was discharged cured, July 15.

October 8th.—She was reädmitted to the hospital in consequence of a gradual closure of the vagina. It was found that the original condition of the atresia existed to the posterior edge of the closed fistula, which had however remained intact, with perfect control of the urine. On the next day, the previous operation was repeated, until the os was again reached, and a glass plug of the same size introduced. During the night, she had a violent chill, and it was followed by an attack of pelvic cellulitis The plug was removed, and at the end of two weeks she recovered, with closure again of the vagina, nearly to the original condition.

Nov. 8.—She was examined, and it was found that about an inch had been gained. At the bottom of this canal, nearer to the base of the bladder, a small opening was detected, only large enough to admit an ordinary probe. After passing some two inches, its point could be felt from the rectum, in the neighborhood of the cervix uteri. A straight, blunt-pointed bistoury was passed along the probe as a guide, and on withdrawing it, an incision was made in the median line, to the depth of half an inch, directly through this septum, on the support given by the index finger in the rectum. A similar incision was made laterally to the right and left, thus again opening the canal to the cervix uteri, so as to admit a plug nearly two inches in diameter. The hæmorrhage was so great, that it became necessary to remove the plug and introduce a larger one into the rectum, which kept the cut surfaces in contact, and controlled the hæmorrhage. The opening gradually contracted, although the use of smaller plugs was persevered in.

Dec. 5th.—The small sinus which still existed, was dilated by a sponge tent, so as to admit the index finger, and free incisions were again made through the septum, for three inches in length.

Jan. 9, 1864.—She returned home to recover her health, having just menstruated, after an interval of nearly four years, for the first time since her pregnancy. The vaginal surface had become well healed over the plug, which had been in use since the operation, and only removed at the time of receiving the injections.

May 25th.—She was again admitted, suffering from constant pain and a feeling of fullness in the pelvis. There had been no menstrual show since leaving the hospital, although the nisus had been regular. The use of the plug had been continued, until gradually it became impossible to introduce it without great pain. The canal was closed, through the rectum a mass, slightly fluctuating, was detected, filling up the pelvis, and with the other hand over the abdomen, the uterus was felt enlarged nearly to the umbilicus. As it was near the regular time for menstruating, she was kept in bed and under the influence of opium.

June 6th.—In the presence of some of the members of the American Medical Association, a trochar was passed from the vagina through the septum, now only an inch in thickness, in consequence of the accumulation behind. More than a quart of retained menstrual fluid was evacuated with great relief, the opening was enlarged, and the cavity of the dilated uterus washed out by injections of tepid water. After ten days the discharge all ceased. The septum now so thin, and having been freely divided, every hope of success was anticipated in keeping it open permanently. In July she was discharged, after menstruating freely, and with her general condition much improved.

She returned to the hospital, December 2d, after menstruating each month with increasing pain and difficulty. A small sinus still remained, but only large enough to admit a probe through the septum, a little over an inch thick. Its tract was somewhat enlarged by a bistoury, and four ounces of retained menstruation evacuated. She was placed under ether, and two fingers of the left hand were introduced into the rectum, well behind the mass, as a fixed point; the index finger of the other hand was then forced through the small opening, with much difficulty. By laceration the canal was thus opened, by the addition of one finger after another, until almost as much was thus gained as previously by means of the knife. The hæmorrhage was but slight, she was kept in bed for a week, and under the influence of opium, without any bad symptoms following the operation. Early in January, 1865, she was discharged.

February 23d.—She reported herself for examination, having menstruated twice without pain. The vagina was now four and a half inches deep, the surface well healed, and with but little discharge. She was directed to continue the use of the glass plug for some time.

I lost sight of the case until May 23d, 1866, when she visited the hospital. She was in perfect health, regular, and living with her husband happily. On examination, the vagina was found well opened, its parieties soft and perfectly healed, although of a much deeper colour than natural. The plug for several months had not been worn, and only passed occasionally as a precaution.

This case is one of great interest; between May 10th, 1863, and December 2d, 1864, she had been operated on, by means of the knife, five times, and with the greatest care, gradually occlusion occurred by contraction after each operation. From December 2d, 1864, when the canal was opened by laceration, to the present time (nineteen months,) there has been no perceptible change in the size of the vagina. It can scarcely be supposed that the canal would have remained as open had she discontinued, entirely, the use of the plug, or were she not married, but the point not to be lost sight of is, that with the aid of both, after each of the previous operations, the atresia became perfect in a few weeks.

October 27th, 1864.—Miss N., aged 18, came under my charge as a private patient. She was a slight, delicate, and undeveloped child, of apparently not more than twelve years of age. There had been no attempt at puberty, and in consequence of the absence of menstruation at so advanced a period, I was consulted. The external development of the organs of generation was in keeping with her apparent age. On attempting to make an examination, I discovered that the vagina was absent, with but a slight sulcus between the labia. A sound was passed into the bladder, and the index finger of the left hand into the rectum; on an approximation, the intervening tissue was apparently not thicker than the vesico-vaginal tissue is usually found. After a careful exploration per rectum, I detected a small mass just within reach, which I supposed to be either a corner of the uterus, or the organ undeveloped.

On questioning her mother carefully, I learned that her daughter had received an injury, when about seven years of age, which proved to have had a bearing on her case She stated that while running in a wood, her daughter had tripped over a dead limb of a tree, and in falling ran a portion of a bough into either the rectum or vagina, and in consequence, was ill a long time from "inflammation of the bowels." On separating the labia, I detected a slight depression, and at the bottom a faint cicatricial line. I determined to operate, thinking, although not always the rule, it was possible that puberty had been retarded in consequence of the obstruction.

October 30th, after a free action of the bowels, she was brought under the influence of ether, by Dr. G. S. Winston, who assisted me. She was placed on the back, the lower extremities well flexed on the abdomen, and a sound passed into the bladder, to be held by an assistant. With a pair of scissors, I carefully cut through the cicatricial line, and with the index finger, the tissue was broken down to the depth of an inch. The advance was now made in the direction of the mass felt through the rectum, by sweeping the finger laterally to the right and left, until firmer tissue was reached. With a sound in the bladder, and two fingers in the rectum, as a guide, when it was apparent, by the sense of touch, that in either direction the relative distance was not preserved, pressure was made in the opposite direction, until a median course was regained. The tissue was readily broken down, and with little bleeding, the uterus was reached at the depth of three inches, in some ten minutes. The separation was continued beyond the cervix less than an inch, when the tissue became so dense, that it was evident at this point the peritoneal cavity had been entered, at the time of receiving the injury. The neck of the uterus was uninjured, while the vagina had been destroyed up to, and around the cervix, without involving it. The sound passed into the uterine cavity an inch and three quarters.

A large glass plug was introduced, and retained by a bandage. During the night she was so comfortable that an opiate was not required, not a bad symptom occurred, and at the end of a week, the improvement in the condition of her nervous system was remarkable. The vagina was daily syringed with tepid water, and all discharge ceased at the end of three weeks. A month after the operation she returned home, with an injunction to continue the use of the plug and injections for several months, and gradually to discontinue them, if there was no contracting of the canal.

Three months afterwards she menstruated for the first time, and so rapid had been the development of puberty, that several members of the family, I was informed, who had not seen her since the operation, did not recognise her. After missing a month, she became regular, and has continued so in perfect health. I had not heard of the case again, until her mother visited me from a neighbouring State, on the 25th of April last, and gave me the above mentioned facts of her case since her return home.

I will now present the history of a case, in which a congenital absence of the vagina and uterus existed.

Miss K., aged 21, a private patient, consulted me, July 24th, 1865, having never menstruated. In appearance she was tall, well formed, and apparently in good health. Since the age of sixteen, she had been subject to sick headaches, and occasionally a wearing pain low down in the back, but with no evidence of periodicity, as indicative of a menstrual nisus. There had been no change in her general health, but during the previous year she had become nervous and irritable in her disposition.

On examining the case, I discovered an entire absence of the vagina, and by the rectum no indication whatever of the uterus. The external organs of generation were well developed, the nymphæ unusually large, and of a dark colour. The meatus urinarius was quite patulous, but not so much so as is usually the case, where the vagina is congenitally absent.

The young lady, unfortunately, had been engaged to be married for several years, and her parents were exceedingly anxious that an attempt should be made to reach the uterus or settle the fact of its absence. In consequence of the warm weather, I delayed the operation until Autumn.

October 5th, 1865, in consultation with Drs. Thos. Cock, T. G. Thomas and Burroughs, she was etherized and placed on the back, with the lower extremities flexed on the abdomen. After snipping with a pair of scissors, the tissue, for nearly an inch in a vertical line, at the bottom of the sulcus, between the labia, the cellular tissue was lacerated by means of the nail and index finger, as in the previous case.

High up in the pelvis, a thick transverse band could be felt from the rectum, as if it were a portion of the broad ligament occupying the position of the uterus, and stretching from one ovary to the other. At this point it sagged within reach of the finger. The advance in this direction was made with great care, in consequence of the extreme thinness of the septum, between the bladder and rectum. The existence of any portion of the uterus, was the main point to be settled, therefore the false passage, laterally, was not enlarged more than to admit the finger readily. After extending it to the depth of some three inches, an absence of the uterus became so evident, that in consultation it was decided to discontinue the operation. A glass plug was, however, introduced; the bleeding had been slight; she was confined to bed, and sat up at the end of a week.

The disappointment was very great, and on being questioned, if I could be positive as to the non-existence of the uterus, from the fact that it was not found in the median line, I determined to make a thorough effort to settle the point. A few days afterwards, with the assistance of Dr. John G. Perry, ether was administered, and I proceeded with the operation. The false passage was still over two inches deep; this I enlarged laterally with the finger, until I reached firmer tissue, and could feel the sides of the pelvis, as in an ordinary vaginal examination. After an advance of some three inches, I began to realize the danger of continuing the lateral dilatation to the same extent, as it was evident, from the sense of touch, that the uterus was wanting, and the tissues was not so dense beyond. An advance was continued, however, in the median line for an inch more, until I was satisfied that scarcely three quarters of an inch intervened between the extremity of a finger in the vagina and the edge of the band felt through the rectum.

Two fingers were passed into the rectum, and with the aid of a hand over the abdomen, nothing could be ascertained as to the existence of the ovaries. High up on the right side a mass was indistinctly felt, but it seemed too distant for the ovary, and there was nothing to correspond on the opposite side. My impression was, that they were either entirely wanting, or in an undeveloped state.

It was remarkable for such an operation, that the bleeding should have been so slight, and it was chiefly confined to the breaking down of the surfaces already well healed. A plug, a little over four inches long by two in diameter, was inserted.

During the night the stomach continued irritable from the effects of the ether, and she was restless, with a pulse of 108. Before daylight an opiate enema was administered, and repeated in three hours afterwards. She became quiet, and twenty-four hours after the operation she was very comfortable. Beyond the use of vaginal injections and anodynes when needed, she received no farther treatment. At the end of ten days she sat up, but her convalescence was tedious, so that she was not strong enough to return home until November 24th.

I saw her occasionally, in the interval, until June 15th, 1866. I then made a careful examination, both by the rectum and vagina, but there was no farther indication of the existence of either uterus or ovaries. The vagina was as capacious, as at the time of returning home, after the operation; its parieties were soft and of a natural colour, except on the rectal septum, about an inch from the fourchette, where I found several indolent looking excrescences, to which was applied nitrate of silver. The plug, for several months, had not been used with any regularity, and only passed occasionally at night. She was in her usual good health, free from all vaginal discharge, but still nervous and easily excited. During the past eight months there had been nothing in her condition which would indicate any menstrual nisus.

This case, apart from the interest bearing upon the subject under consideration, is an anomalous one. As a well developed female, with this single exception, without any vicarious discharge, her general health is excellent, while there is no indication, at present, of chlorosis, phthisis or any organic disease; the condition of her nervous system may be hereditary to a certain extent, for her mother is of the same temperament.

If the glass plug, so often referred to in the treatment of these cases, be made of the best quality of glass, a tenth of an inch thick, and open at the outer end, there need be no fear of its breaking in the vagina, for I never knew the accident to occur. The instrument has been made of various metals, gutta percha and box wood, but glass alone stood the test for lightness, cleanliness and the risk of poisoning by absorption from its previous use.

I have met with but two other cases, where the uterus was absent, and operated only in the single case reported. I could, however, give in detail, some ten or twelve cases in addition of accidental atresia, partial or complete, in illustration of the views I have presented. But it would be unnecessary to do so, as my object has been to present briefly, only type cases, with the treatment of them in detail, for the purpose of calling the attention of the Society to this practical point, which I am satisfied the future experience of the Profession will sustain.

The point, however, must not be lost sight of, that it is not claimed, if a mass of cicatricial tissue be divided by either scissors or by simple laceration, the character of the tissue can be thus so altered by the mode of division, that there will be no tendency to contraction, if the parts be left to themselves; the action is only not so rapid or complete. It is believed that the constant pressure of the glass plug, gradually changes the character of the structure, through the agency of absorption, or by a metamorphosis of tissue.

When incised by the knife, the surface granulates so rapidly, that it is impossible to prevent adhesion, while on the contrary, when divided by scissors or lacerated, this action is not so rapid, and we thus gain the time necessary to bring about this modification by pressure.

Why the tissue divided by a clear cut should granulate so rapidly, and become as dense as before, while by the scissors the process is slower, and a return to the original condition is not the rule, we can only explain by speculation, but the fact I think we must accept, as taught by experience.

Formerly, when these bands were divided by the knife, before the edges of a vesico-vaginal fistula, for instance, could be brought together, the preparatory operations were often a question of many months. They frequently failed from excessive hæmorrhage at the time, or a negative result by contraction, and many cases were then regarded, in consequence, as incurable. Now, these bands are divided by scissors, as a rule, at the time of closing the fistula, with generally but little hæmorrhage, and the edges, if properly scarified, are firmly united before the surface so divided is healed, without the same tension afterwards.

In conclusion, therefore, I will state, in a ratio, as the knife has been abandoned in the different operations about the female pelvis, and the use of the scissors, laceration, and the écraseur substituted, has the field of surgery been extended by results not obtained before.

ART. II.—EXTRACTION OF A MINIE BALL WHICH HAD TRAVERSED THE ENTIRE LENGTH OF THE NECK. By R. FRASER MICHEL, M. D., of Montgomery, Alabama.

F. C., aged 24 years, Sergeant in Company F, 60th Alabama Volunteers, Gracie's Brigade, was wounded in the face at Petersburg, Va., on the morning of the 31st of March, 1865, while on the right flank of the army, by a minie ball, said to be fourteen to a pound.

The ball entered the face one inch and a half above the left angle of the mouth, knocked out both bicuspides and half of the first molar of the upper jaw, and chipped the second molar of the lower jaw. It next transfixed the tongue, and split that organ about two inches to the apex, plunging into the supra-hyoid space.

Profuse hæmorrhage occurred at the time of the accident and continued more or less for several days. Sergeant C. was examined by Assistant Surgeon Leonard about two hours after the wound was inflicted, and towards evening by Surgeon C. Wall, of the 60th Alabama Regiment, and Surgeon Lucky, then acting Brigade Surgeon. These gentlemen could not reach the ball, but were enabled to secure the vessels and arrest the profuse hæmorrhage. The tongue became very much swollen, and remained in this condition about a week, during which period no solid food was taken. Sergt. C. was admitted into the Hospital at Danville, Va., on the 7th of April, when he began to spit up a good deal of pus. While under the care of Asst. Surgeon Bragg, a careful examination was made, but no ball detected; and on the 11th of April, he was furloughed, and came to Montgomery, Alabama.

The wound healed rapidly, and Sergeant C. was not disturbed until the middle of July, when, after much uneasiness during deglutition, his tongue became paralysed. This sad condition of things was relieved about the 10th of August, when power and motion again returned to the organ. He was now congratulating himself upon his recovery, when, on the 20th of September, violent pain set in, and continued until the 1st of October, during which time an abscess formed on the anterior surface of the right side of the neck, on a level with the cornua of the hyoid bone, and he consulted Drs. Fitzpatrick and Merriwether, of Montgomery County. These gentlemen opened the abscess, from which pus was freely discharged, but no ball could be discovered.

Sergeant C. was again relieved, and remained so until the middle of December, when he consulted me for a pain in the neck, and upon making a careful examination, I discovered that the depressor muscles of the larnyx were in a partially paralysed condition. I probed the wound made by the opening of the abscess, and requested Drs. Holt and Gaston, then on a vist to my office, to do the same. No ball or foreign substance being discovered, the patient was permitted to leave without being relieved. He went into the country, but returning on the 10th of February, 1865, presented himself at my office. He informed me that the pain had continued up to the 1st of February, when it ceased, and since that time he had been spitting up pus, which he did then in my presence. The wound had healed completely, and he requested me to give him a wash for his month, as the odour of the discharge was horrible. He left my office, but soon to return, in great pain and almost unable to swallow. On this occasion, (the 14th of February,) I thought I could distinguish a foreign body in the lower part of the neck, near the trachea, and as my patient consented to have an operation performed, I operated, with the assistance of Dr. P. H. Owen.

The ball was removed after making an incison along the anterior margin of the sterno-mastoid, at a point where the omo-hyoid crosses the cervical region. Some effort was made in extracting the ball after it was seized in the branches of a pair of bullet forceps, The base of the ball rested beneath the deep-seated cervical fascia, where its layers unite upon the anterior border of the sterno-mastoid to be prolonged onwards to the middle line of the neck. After the removal of the ball, a considerable quantity of pus was discharged. The wound healed in a few days, and my patient was entirely relieved.

Upon making an examination of the ball, we discovered that it was very ragged, twelve points of extreme asperity were detected upon its external surface. Three fossæ, evidently depressions made by the three teeth from the upper jaw, were discernible, and near the base quite an excavation, in which was lodged the chipped portion of the middle molar of the lower jaw, so imbedded that it could not be removed without injuring the specimen.

Remarks.—This case is one of interest to the Profession, as we have another evidence of the passage of a ball through the entire length of the neck, amid important blood-vessels and nerves, without material injury to the part. First, pressing upon the hypoglossal nerve and producing paralysis of the tongue, (rare when only one nerve is pressed upon,) and secondly, touching the descendens noni, and producing partial paralysis of the dep:essed muscles of the larynx. The spitting of pus, as well as the tooth encased in the ball, might be considered of some interest, when we reflect upon the fact, that the missile entered on the 41st of March, 1865, and was not removed until the 19th of February, 1866, a period of *ten months and nineteen days.*

Art. III.—Strychnia in Anæsthesia. By Samuel C. Chew, M. D , Professor of Materia Medica and Therapeutics in the University of Maryland.

The influence of strychnia, as a spinal stimulant, is chiefly exerted, as is well known, upon the anterior column of the cord, and through the motor nerves originating in that portion of the spinal axis, it gives rise to muscular contractions.

It was first employed as a remedy for paralysis more than fifty years ago by Fonquier, who pointed out with great accuracy the peculiar indications for the use of strychnia, and whose observations have been abundantly corroborated by later experimentation.

According to Brown-Séquard, the action of strychnia consists in an increased nutrition of the spinal marrow, in consequence of which a larger amount of nervous force is generated and conducted along the nerves to the muscles; and this conclusion agrees with that arrived at by Kölliker, who has proved that the drug acts upon the spinal marrow alone, and not directly upon the nerves themselves, nor upon the muscles to which the nerves are distributed. This is rendered evident by the simultaneous contraction and relaxation of many muscles, which can be occasioned only by an influence acting upon their common source of innervation; and that this source is the cord, independently of its connection with the brain, is proved by the fact, that in the midst of the tetanic convulsions, the central functions are often found to be entirely unaffected; and by the further fact, that in some of the lower animals, if the cord be severed from the brain, the same phenomena are caused by strychnia as when the connection is unbroken.

In its influence upon the cord, strychnia, as just stated, appears to affect principally the motor tract. In many cases of paralysis of motion in which sensation is unimpaired, power is rapidly restored to the paralyzed muscles by its use, and when a poisonous dose of strychnia has been taken by a person in health, though the spasmodic contractions of the muscles may be of the most violent character, yet very generally no hyperæsthesia or exaltation of sensibility is produced. It often happens, indeed, that little or no pain is felt, even in the midst of the convulsions, the stiffness and soreness of the muscles that are subsequently experienced being due to muscular exhaustion, as a consequence of excessive action.

Though the effects of strychnia are exerted chiefly upon the motor tract of the cord, it must not however be regarded as limited in its action exclusively to this region. After it has been administered in small medicinal doses for some days, patients occasionally experience a sense of formication, tingling or itching in various parts of the body, resembling what is felt, when the foot is said to be asleep. This shows that it exerts a certain degree of influence over the sensibility of the nervous centres, stimulating the function of sensation to some extent, but much less than that of motion. In the treatment of paraplegic cases, in which sensation and motion are both abolished, when strychnia is indicated, its use is found to be followed by a restoration of sensibility, as well as of the power of motion. And still further, in some rare cases, it appears to act principally, if not exclusively, upon the posterior column, when the function of sensation is impaired, without the existence of any corresponding disturbance in that of motion. M. Pétrequin reports instances, in which he had used it successfully in the treatment of anæsthesia; and cases of amaurosis and impairment or abolition of the senses of taste, smell and hearing furnish illustrations of its beneficial effects upon sensory paralysis.

The following case is of interest, as showing a very marked action of strychnia upon a paralysis of sensation, alone affecting an extensive surface:

J. B., a native of Pennsylvania, aged 52 years, was admitted into the Baltimore Infirmary, October 8th. He had suffered from cough, more or less constantly, for more than two years, and had lost flesh and strength. Upon his admission, the signs of a small cavity in the right lung were discovered. He was put upon the use of cod liver oil, and under its influence the pulmonary trouble underwent a marked alleviation.

About a month before his entrance into the Infirmary, the patient became aware of a diminution of sensibility in the left foot; this was for a time so slight that he made no mention of it to the attending Physician. Gradually, however, the anæsthesia extended upwards, from the foot to the knee, and on taking charge of the Infirmary, in March, I found that sensibility was entirely abolished in the foot and lower part of the leg, and very much impaired for the distance of three or four inches above the knee. In all other parts of the body, it was unaltered. The power of motion appeared to be affected only secondarily, as a consequence of the loss of sensation. The patient could move his toes, and had control over all the muscles of the limb, but not feeling the contact of his foot with the ground, his gait was unsteady, and unless his eye was kept fixed upon the foot which had lost sensation, he was liable to fall down.

The method suggested by Weber, for ascertaining the degree of cutaneous insensibility, which consists in determining how closely the points of a pair of compasses may be approximated on the skin, and yet be distinguished as two points, was entirely inapplicable to the lower part of the limb, as sensibility was utterly abolished. A much rougher test was necessary, and accordingly I made, with a bistoury, two incisions through the skin, one just above the outer malleolus, the other just below the knee, without causing the patient to manifest the least sign of pain; and the same insensibility was shown on applying a lighted match to an intermediate point.

Thinking it a favourable case for testing the effect of strychnia, upon sensory paralysis, apparently uncomplicated with disturbance of motor power, I directed the patient to have the 48th part of a grain of strychnia in solution three times a day, and had the affected limb rubbed at the same intervals, with a liniment composed of equal parts of Tr. Nucis Vomic. and Tr. Arnicæ.

In about a week there was a very decided increase of sensibility in the upper part of the limb, and some evidence of a return of feeling in the foot, which in the course of two or three weeks more became very perceptible.

The dose of strychnia was now increased to the 24th part of a grain, and continued in this amount for several weeks. The degree of sensibility increased steadily and rapidly, until by the 1st of June there was no apparent difference in this respect, between the two limbs—the application of irritants affecting the one that had previously been anæsthetic, fully as much as the other.

The patient was now no longer liable to fall down when his eye was averted from his foot. He could walk without inconvenience, for a considerable distance, and was able to go up stairs without using his cane.

The return of sensibility was fairly attributable to the use of strychnia, inasmuch as the anæsthesia, which had been absolute, began to abate almost immediately after the first administration of the drug, and constantly diminished until the normal function was entirely restored; the ability to walk being altogether dependent upon the return of sensory power.

The pathology of this and similar cases is interesting, and yet very obscure. The dilemma of an eccentric or a centric lesion is presented. If the paralysis be supposed to depend upon an eccentric lesion affecting a nerve in its course, such as mechanical pressure, cr a diseased condition of its fibres, how is it to be explained, that sensation is affected independent of motion? Can we suppose the pressure or the disease to act upon the sensory filaments alone, and not upon the motor also, when the two roots of the spinal nerves, after emerging from the canal, become so blended together, that their respective filaments can no longer be distinguishable?

On the other hand, if the lesion be centric—seated, that is, in the posterior column of the cord, or in the posterior root, before it has become united with the anterior—why is it that the seat of sensation in the cord was affeetcd by impressions transmitted along the sensory nerves from the upper part of the limb, which never lost sensibility, and not at all affected by impressions which came from its lower parts?

In the present state of our knowledge of the nervous system, no satisfactory explanation of these phenomena can be offered, and we are obliged to accept them as ultimate facts.

ECLECTIC DEPARTMENT.

I.—LECTURES ON THE RECENT ADVANCES OF OUR KNOWLEDGE IN THE DIAGNOSIS AND TREATMENT OF FUNCTIONAL AFFECTIONS. By C. E. BROWN-SEQUARD, M. D., F. R. S., &c.

[FIRST LECTURE CONCLUDED.]

I. *Means of suppressing the causes, or of diminishing their intensity.*—When functional nervous affections are due to an evident irritation of a branch, or of the terminal ramifications of a nerve of a limb, or a superficial nerve of the abdomen or chest, several means of treatment may be successfully employed to check or to cut off the irritation. I will say a few words on the most important of these means.

1st. *Local applications of narcotics.*—In cases of epilepsy, of tetanus, of hysteria, and most other functional affections of the nervous system, a wound of the skin or of a branch of a nerve may be the cause of the nervous disorder. Narcotics, and particularly soluble salts of morphia and atropia, employed together, should be applied on the wound itself, in doses varied according to the absence or abundance of suppuration. An important rule of this mode of treatment, about which I will say much more in the lecture on tetanus, is that the application of narcotics must be frequently renewed, particularly if there is an abundant discharge of pus. If the cause of a functional nervous affection is a division of a large branch or of the trunk of a nerve, an injection of a solution of morphia and atropia should be made at some distance from the wound in the subcutaneous cellular tissue, round the central part of the divided nerve (half a grain of a salt of morphia with one-fiftieth of a grain of a salt of atropia.)

2d. *Local application of ice.*—I have long ago pointed out the usefulness of this application on a wound producing a functional nervous affection. I will only say here, that when such a means is employed, particularly in a case of tetanus, there should be no interruption in the presence of ice on the wound during the whole of the time that the nervous affection lasts. Billroth has recorded two cases in which tetanus due to a wound has appeared, notwithstanding the application of ice on the wound. It is probable that in these cases there had been some interruption in the application of ice.

3d. *Application of the actual cautery.*—This means, which may be useful when it is necessary to alter the nature of the secretions in a wound, or to destroy parts of tissues containing a venom, has not generally so much value as the preceding and the following modes of treatment.

4th. *Various applications on the trunk of nerves at some distance from a wound.*—It may be useful to lay bare the nerve that gives filaments to the wounded part, and to apply sulphuric ether or narcotic alkaloids or ice upon it. In cases in which there is reason to expect that the original wound will soon heal, this mode of treatment might prove useful.

5th. *Section of a nerve.*—The number of cases of epilepsy,of tetanus, and of other nervous complaints, due to a wound, a burn, ect., in which this mode of treatment has proved quite successful, is now so large that there is no doubt as regards its immense value. It is most important to know that the operation must be performed early, and that its chances of success decrease rapidly with the prolongation of the nervous affection produced by a wound, a burn, or some other peripheric cause of irritation. It is necessary not only to divide the nerve completely, but to take away a small part of its peripheric end, which is to be examined carefully with the microscope to ascertain whether it is altered, or not. If it is found inflamed, or otherwise altered, the operation must be repeated (if possible, of course) on the same nerve, much nearer the spine or the cranium. The examination of a small part of the nerve extirpated in this second operation, will prove important for the prognosis of the case. It can hardly be an objection against the division of a nerve in affections like epilepsy, tetanus, hydrophobia, etc., that a paralysis is the necessary result of the operation. No sane man can hesitate between these two things—an almost certain death, or the persistence of a most horrible affection which may produce imbecility ; and a paralysis of motion and sensation in a part of a limb, or even in a whole limb. And the hesitation, if any could exist, would certainly give way to the knowledge that the ends of a divided nerve, even when a small part has been excised, will often unite soon, or at least within a year, and the paralysis be cured more or less completely. The rapidity of union of the ends of a divided nerve may be so great, that in a few weeks, and even sooner, there may be a partial return of function, as shown by cases reported by Mr. J. Paget, by Mr. Syme, and by Professor Laugier. As regards the completeness of the return of the vital properties in a divided nerve, I have seen that it may be as perfect as possible, particularly in the case of a nobleman on whom Sir Wm Fergusson had divided the infra-orbitalis for a neuralgia.

6th. *Operations on the genital organs.*—An able surgeon has lately treated several kinds of functional nervous affections by the extirpation of the clitoris. That this operation may sometimes be useful, there is no doubt at all. But I cannot look upon this mode of treatment as one that should be employed in other cases, than those in which a distinct aura starts from the clitoris, or in those cases in which that organ is morbidly sensitive and much hypertrophied. There are cases of nervous complaints, due to masturbation, in which the clitoris has been extirpated, without any durable benefit, as regards the nervous affection, or even as regards the masturbation. In women, as well as in men, the only decisive means against masturbation is the production of a small ulcer (by caustics or the red iron) on parts of the genital organs that are unavoidably touched or moved in the act of self-abuse, so that every attempt to accomplish the act, either with or without the help of the hand, is so painful that the patient must give it up. As regards the removal of the testicles, it seems to me a barbarous operation, if performed only because there is an excessive tendency to sexual intercourse. I will say more on this point, when I treat of epilepsy.

7th. *Trephining of the cranium.*—As a mode of treatment against epilepsy, this operation has been much more frequently performed than is generally known. It has also been performed, and successfully, in a case of tetanus, which I will mention in another lecture. It would be out of place here to discuss the question of the usefulness of that dangerous operation as a means of treatment of epilepsy. I will merely say, that it is only in cases of an irritation of the dura mater, by a broken piece of bone, by diseased bone, or any other evident organic cause, that trephining can rationally be performed; and that even in such cases a cure might be obtained (and has really been sometimes obtained) by the use of counter-irritants on the diseased spot. In another lecture I will give the details of a most interesting case published by Mr. Henry Lee (in Dr. Beale's "Archives of Medicine," 1860, p. 80), in which trephining of the cranium cured an ulcerous affection of the skin of the arm, and spasmodic movements in the same limb.

8th. *Ligature of the carotid artery.*—This most irrational mode of treatment is, or, I hope, wil be, completely abandoned. It has been employed in epilepsy, and in mania, with the view that those affections depend on a congestion of the brain, and that a ligature round the carotid artery would diminish that congestion. I will show in the lectures on epilepsy that the good effects of this operation in the cases of Preston, and his imitators, have been obtained chiefly through some injury to the cervical sympathetic nerve.

9th. *Other operations for the removal of causes of functional nervous affections.*—I will only point out the importance of the removal of a decayed tooth, of a tumor, of a carious or necrosed bone, in those cases in which there is a probability that these sources of irritation are the principal causes of a nervous complaint. Of other operations, such as tracheotomy and the cauterization of the urethra, I will only say a few words. It is now perfectly established, that the theory of epilepsy given by Marshall Hall was wrong; and that if tracheotomy may be useful in some cases of epileptic coma, of spasm of the glottis, in tetanus, in hydrophobia, or in whooping cough, etc., this operation is then of service against an effect, and not against a cause, of the existing nervous affection. As regards the cauterization of the urethra, according to Lallemand's plan, in cases of nervous complaints due to seminal losses, I must say that I have been consulted by a great many patients who had been vainly submitted to that operation; while I have often observed a considerable amelioration, and sometimes a cure, by a medicinal and hygienic treatment, consisting in the use of atropine, the ergot of rye, large doses of the bromide of potassium, and tonics—such as quinine, iron, manganese, silver, with cold, shower, and sitz baths, gymnastic exercise, and the most nourishing alimentation.

10th. *Treatment against alterations of the blood, and visceral diseases.*—I only wish to point out under this head that every organ or part of an organ, in so far as it has nerves, and also if it has any marked influence on the composition of the blood, can be the cause of a functional nervous affection. Therefore any alteration of any organ must be fought against in any such nervous affections, particularly when no other cause of it can be found but that alteration. As regards the morbid states of the blood, there is no general rule of treatment that can be given. Anæmia, chlorosis, rheumatism, gout, and syphilis are to be treated in the same way when they are the causes of a nervous complaint as when they have produced no such effect.

II. *Means of diminishing the reflex excitability of the nervous centres.*—An increase of the reflex excitability of some part of the nervous centres, is one of the most important elements of many neuroses, and particularly epilepsy, hysteria, tetanus, hydrophobia, delirium tremens, chorea, paralysis agitans, and some forms of reflex insanity. To diminish that increase of reflex excitability is an essential part of the treatment in those affections. The following remedial agents are to be employed against this morbid excitability: 1st. Codeine, morphine, atropine, valerian, aconite, the chloride of barium, and the bromide of potassium, are undoubtedly the most reliable remedies against an increased reflex excitability. According to the kind of nervous affection, and also to the seat of the increase of that vital property, we are to select one or several of these remedies. Atropine, valerian, and the bromide of potassium, are the most valuable in epilepsy; the chloride of barium is of real value against tetanus and paralysis agitans, but of no use in the common forms of epilepsy; codeine, morphine, and valerian are useful against hysteria, etc. None of these remedies, however, equal chloroform, but unfortunately its influence is merely transitory.—Counter-irritants and the warm bath have also a great power against the increased reflex excitability, as I will show in another part of this lecture. 2d. As a morbidly increased excitability is very often due to anæmia, or to an impoverished nutrition, all the hygienic and medical means (good food, exercise, and tonics) that can improve nutrition, should be ordered in such cases against that morbid state. 3d. It is of the utmost importance to improve the sleep, which is generally so bad in patients attacked with a morbid increase of the reflex excitability. For this purpose an invaluable remedy has recently been discovered: it is the bromide of potassium. Excepting when pain is one of the causes preventing sleep, (in which case opium, aconite, and belladonna should be employed together,) I have found that this remedy has a most wonderful power to produce a quiet and refreshing sleep, without any drawback that I am aware of. I usually give to adults a dose of thirty grains of that salt, a quarter of an hour before the last meal, and a second dose of from thirty to fifty grains at bed-time. In cases in which, without any nervous complaint, there is sleeplessness owing to some cause of cerebral excitement, as well as in all neuroses, excepting hydrophobia, tetanus, very severe cases of delirium tremens, and some forms of insanity, sleep is almost always induced by that remedy. In some cases I have found it necessary to increase the dose of the bromide, and to give also one grain or one grain and a half of codeine an hour before bedtime. In those affections in which the bromide of potassium is not powerful enough as a sleep-inducing agent, a warm bath of four, five, or six hours' duration is often successful.

III. *Moral treatment.*—As I shall have to dwell at length on this subject when I treat of hysteria, I will only say a few words here on two general principles, which, notwithstanding their importance, are very much neglected. The first of these principles, so well established by the researches of Dr. Cerise, is that a *serious aim* is of the greatest value, and for many persons quite essential, to prevent or to check nervous disturbances. The applications of this principle are, of course, very difficult, and often impossible, in certain neuroses; but in those cases in which any kind of serious work, not too fatiguing or exciting, is liked by the patient, he should be induced to do it. In cases of hypochondria, of hysteria, of chorea, and even of epilepsy, a great benefit can be derived from a serious employment of the mental and physical activity of the sufferer. How often have I not seen young epileptics kept in idleness, (alas! by medical advice,) and, having gained more or less of the vices it leads to, improve rapidly from having their minds occupied at regular hours, in the same way as healthy people of their age. The second principle of which I will speak now is, that we must, in the interest of our nervous patients, much more than in our own, give confidence and hope in the treatment we recommend. In hysterical and all nervous complaints allied with it, and also in hypochondria, and in several other neuroses, a great hope of cure will do much to work out the cure. No doubt you will say, how to give hope? I answer that the best means for that purpose is to have hope ourselves, and to express our hope with the accent of conviction And as you would ask, how can we command hope in ourselves? I answer, that the very knowledge of the truth of the principle I am now speaking of is enough to render one hopeful. I need not repeat that I am now speaking only of those neuroses in which the power of the mind upon the body is immense, and so much so that in some forms of these neuroses a sudden or almost sudden cure is not very rare.

IV. *Special modes of treatment in periodical nervous affections.*— It is not my intention to speak now of the well known useful influence of sulphate of quinine against perfectly periodical attacks of neuralgia, of epilepsy, etc.; I only wish to speak of a method of perturbation of the nervous system which I have employed with great advantage in some of those cases of local convulsions, of attacks of epilepey, of hysteria, etc., which either recur nearly at fixed periods, or are preceded by a warning that gives time to make use of the means I will now mention. In a case of spasm of some muscles of the jaw and face, preceded by a sensation of pricking in the cheek, and oocurring several times a day, in a boy seven years old, I found that violent exercise on a swing always prevented the fit, when the patient had time to run to the swing before the muscular contraction had begun. By that means, which never failed, the boy was many hundred times saved from his attack before being completely cured of it, which occurred on the coming out of a molar tooth, which, however, had not given the least pain. The beneficial influence of this mode of perturbation of the nervous system I have observed since, in a number of cases of hysteria and epilepsy. A great many other means of changing the state of the nervous system have been employed, with some benefit, by other Physicians, or by myself. Among these means, I will merely mention here the following: A ligature round one or several limbs, (even when there is no evident aura,) tied strongly and suddenly; a pretty sharp pinching of the skin; a rather large dose of an emetic, taken with a great quantity of water; a cold shower-bath on the back; the application of an interrupted and powerful electro-magnetic current; a dose of twelve, fifteen, or eighteen grains of sulphate of quinine about an hour before the expected attack; an enema of a drastic medicine; the inhalation of chloroform, etc. I will give more details on these important perturbing means, in the lectures on hysteria, neuralgia, and epilepsy.—*Chicago Medical Examiner.*

II. OZONE: ITS RELATIONS TO HEALTH AND DISEASE. An Essay which received the Fiske Fund Premium June, 1861. By E. S. GAILLARD, M. D., of Richmond, Va.

[CONTINUED.]

Ozone can frequently be perceived, by its odour, when we are unable to detect the coincident presence of hydrogen. As Dr. Griffin well remarks, in his recent views on this subject, "the difficulty of determining whether ozone is an element, or a compound, depends upon the fact that the quantity of acting matter is so small, that it cannot be confined long enough to be weighed, measured and analyzed with certainty. Yet the majority of the reäctions seem to clearly show, that ozone is not oxygen, but an oxide of hydrogen." Most of those who were the chief endorsers of the theory in regard to electrified oxygen, have abandoned it. Dr. Andrews, who was quoted as authority on this subject, as one who had expended upon it much care and labour, comes before a public society and confesses that "the commonly received statement that the whole of a given volume of dry oxygen gas, contained alone in a hermetically sealed glass tube, can be converted into ozone by the passage of electrical sparks, is erroneous." It is publicly stated, that the experiments of MM. Frémy and Becquerel, for the elucidation and establishment of this theory, were only three; that two failed, and the third "presents numerous reasons for doubt." Dr. Gregory and others, who based their opinions and declarations upon the previously published statements of Dr. Andrews, cannot longer be cited as authorities; Dr. Griffin ridicules the theory, and regards it as untenable and as "a chemical hobby." M. Schönbein regards the theory as impossible in its nature, and now holds his original opinion on this subject. Dr. Richardson, of London, who has bestowed great care and labour on this subject, and who is now actively engaged in the study of it, thus writes: "I consider, with Schönbein, that peroxide and binoxide of hydrogen and ozone are all the same —(Autograph letter to author from Dr. Richardson, January, 1861.) After a careful and long study of this subject and of the writings of all similarly engaged, it is certainly in accordance with the best and most reliable testimony, that ozone should be regarded as a peroxide of hydrogen. It is certainly safe to say, that the most reliable investigators now regard it as a peroxide of hydrogen.

It is proper that, in this connection, we should give very briefly the opinions of those who do not consider this to be the composition of ozone, and of those who hold and advocate views both novel and antagonistic.

Schönbein published, in 1858, an article on the subject of the composition of ozone. In this he states that there are three kinds of oxygen—"Common oxygen, or oxygen in an inactive state; ozone, or oxygen in active state-positive; and antozone, or oxygen in an active state-negative. When these last two kinds of oxygen combine with each other, equivalent to equivalent, they constitute common inactive oxygen." On this theory, he proposes to establish two classes of metallic oxides; the ozonides and antozonides. He thus enumerates the ozonides; they are the superoxides of Mn, Pb, Ni, Co, Bi, Ag. and also the compounds chromic, permanganic and tanadic acids. The ozonides are said to possess the following properties: "When heated with hydrochloric acid, they produce chlorides, free chlorine and water. They do not combine with hydrated acids. They decompose oxygenated water into water and oxygen. They give a blue colour to freshly prepared tincture of guaiacum. They art strongly electro-negative.' The antozonides are the superoxides of Ba, Sr, Ca, and of the metals of the alkalies. The antozonides have the following properties: "When treated with hydrochloric acid, they produce chlorides and oxygenated water.—They do not discharge free chlorine from chlorides. They combine with hydrated acids. They do not give a blue colour to the freshly prepared tincture of guaiacum; on the contrary, they bleach that which has been made blue by the ozonides. They are electro-positive." Although these two classes are yet retained and styled the ozonides and the antozonides, still M. Schönbein, on the authority of Dr. Richardson, of London, (autograph letter, January, 1861,) does not now consider ozone as oxygen electrified, but as "a peroxide or binoxide of hydrogen." Dr. Richardson, in his paper read before the Medical Society of London, takes the same view. It will thus be seen that M. Schönbein has, in recent years, advocated novel views in regard to the composition, but that he has returned to his original opinions and theory. Dr. Pickford regards ozone as a teroxide of hydrogen. Dr. Prout styles it a deutoxide of hydrogen. We do not think it necessary to discuss their reasons for these opinions, as they are too entirely based upon hypotheses to be of practical value.

In a paper read by Dr. E. J. Fountain, of Iowa, before the American Medical Association, in June, 1865, and to which he invites the attention and criticism of the Profession, there is a marked and prominent allusion to the subject of ozone. He observes: "I shall venture to affirm, that ozone is simply oxygen in a nascent condition, produced by the electro-lytic decomposition of the vapour of water in the atmosphere." In another part of his paper he states: "My attention has been directed to the subject in connection with recent investigations in relation to oxygen as a therapeutic agent. My observations have led to the development of a theory of the nature of ozone, which I believe to be more in accordance with well-known laws in natural philosophy, than any heretofore advocated; and while it embraces, as I believe, all the facts which have been observed, in relation to the subject, it clears up many of the difficulties which have been acknowledged to belong to it." These views, from the prominence which has been given to them, by the associated circumstances, should certainly meet with respect and consideration; at the same time, they are a proper subject for criticism. Being incorporated with the published transactions of such a body, they will call forth criticism abroad, if they escape it at home. We propose, therefore, to briefly allude to them, and, with all respect proper, to mention a few facts which would of themselves, perhaps, form the most appropriate criticism.

M. Houzeau, in his writings on this subject, six or eight years since, advocated the same views. These views were extensively published, and since that time, have been well known to all who have made a continuous study of this subject. They were examined and of course well understood, but, with one or two exceptions, failed to secure the attention or public notice which perhaps they deserved. It is needless to say, that these views are entirely speculative, and that they were not practically supported by their original advocate. M. Scoutetten, in his work, alludes to them; he observes "that in the decomposition of the binoxide of barium, by sulphuric acid, there is an abundant production of electricity, and, immediately after this, the formation of ozone; it is to this gas we must attribute the properties peculiar to nascent oxygen." Again, he alludes to the same principle or gas as really producing the effects attributed to nascent oxygen. Writing of the production of electricity as attending the decomposition of binoxide of barium, he observes: "These things take place in all analagous cases; but when the decomposition of a salt takes place slowly, electricity is developed slowly, and does not sufficiently reäct on the oxygen, which thus for a time preserves the properties appertaining to it." In other words, oxygen, in such cases, where the changes (produced by the attending electrical results of decomposition) take place slowly, presents to us the mixed condition of oxygen and ozone; that in this state it is styled nascent oxygen, but that all the properties attributed to this, so-called, nascent oxygen must be attributed to the ozone which enters into its composition. Or, as Scoutetten observes, "to this gas (ozone) we must attribute all the properties peculiar to nascent oxygen." With this exception, no author of whom we are aware has given to M. Houzeau's suggestion the complimentary attention of a public or published analysis. It of course received the notice usually bestowed on plausible suggestions and attractive hypotheses. It is fair to claim that the failure to attract any farther attention than this is sufficient, if not primâ facie evidence of the speculative and untenable character of any theory. We wish to be understood, in this brief notice, to have exclusive reference to the theory suggested, and in no respect to its American advocate.

Of course, to Dr. Fountain undoubtedly belongs all the credit of an original suggestion, and we are fully satisfied that had he, in his extensive reading, met with the history and review of the theory he advocates, he would have been among the first to appreciate and recognize its fallacy. Enthusiastic, as he appears to be, in the investigation of subjects forming the topics of his published papers, it is evident that he desires to bring to their study close examination and dispassionate reasoning.

It will thus be seen, that the theory of nascent oxygen forming the composition or active principle of ozone is not new; and, also, that it is not tenable These form the most interesting views advocated in regard to the composition of ozone. It is now generally regarded as a binoxide, or peroxide of hydrogen.

We have, upon this branch of the subject, given in a few pages, the basis, true value and recognized result of volumes of controversy. After again stating that its composition is now generally considered to be a binoxide, or peroxide of hydrogen, we pass on to the consideration of the properties of ozone.

Ozone is the most rapid oxidizer known; it is colourless, of suffocating odour, somewhat similar to the admixture of chlorine and atmospheric air. The odour of ozone is too penetrating and suffocating to be inhaled with safety in a state of purity. Its power is such that one part of ozone is perceptible in a million parts of atmospheric air. It is diffusible in oxygen gas or in the atmosphere. "The extent to which oxygen can be saturated with ozone is not accurately known." It is so destructive to life that an atmosphere containing the 1-6000th part of ozone is fatal. "During the electrolysis of water, which contains 1-10th of sulphuric acid, Baumert found only one milligramme of ozone in 150 litres of explosive gas. Andrews found that when water was mixed with one-eighth of sulphuric acid, the oxygen, separated from the hydrogen, contained four milligrammes of ozone in one litre of gas, and he states that with a solution containing one half sulphuric acid, eight milligrammes of ozone may be condensed in one litre of oxygen. This is the highest published estimate, and is equal to one part of ozone in 180 parts of pure oxygen."

The odour of ozone is perhaps most like to that emitted by an electric machine, when in rapid motion. The most familiar manifestation of ozone is that peculiar odour detected in the atmosphere after a thunder storm. When in the least concentrated, it is extremely irritating to the respiratory organs Ozone cannot be separated from oxygen. or reduced to the liquid or solid state. Dr Griffin states that it is insoluble in water and in solutions of acids and alkalies All organic matters have their colouring principle speedily destroyed by it; albumen and lignin, also, whether found alone, as with the former, or as in the case of the latter, representing the base of some inorganic body. It possesses the most powerfully bleaching properties known, and rapidly corrodes even cork or caoutchouc. Metallic silver is converted by it into a peroxide of silver. It is easily destroyed by heat, and if made to pass through a tube heated to redness, is entirely destroyed. If ozonized oxygen is thus tried, only oxygen remains. It is a quick and efficient deodourizer, and if a piece of tainted meat is immersed in it for a few moments, all unpleasant odour is speedily removed.—Oxygen combines very slowly with mercury, at ordinary temperatures. whilst ozone, if the metal be damp, unites very rapidly with it; most rapidly with mercury and silver, at low temperatures. It decomposes the solution of the iodide of potassium in water, giving to the water a yellow colour. There must be a slight dampness for ozone to combine rapidly with most substances. It combines with chlorine, bromine and iodine chemically, and with water, but for this last there must be contact of several hours. When uniting with chlorine, bromine and iodine, there will be found chloric, bromic and iodic acids.

All baleful exhalations are, by ozone, immediately destroyed, and idio, or koino-miasmata rendered harmless. Ozone, in the minutest quantity, can always accomplish this; it will always purify five hundred and forty times its volume of impure air. Schönbein, from this striking fact, was disposed to think that chlorine was not an element, but a compound, consisting of chlorine and ozone; and that ozone was an element, from chlorine being regarded as a compound. Faraday has advocated the same views. These last statements are made on the authority of Dr. Griffin, of London.

Hydrogen, selenium, phosphorus, &c., when in small quantity pervading the air, render it unfit for respiration. From analogy, based upon this fact, ozone has been classed with these substances. Compounds of hydrogen are rapidly destroyed by ozone, and it is a significant fact that all miasm evolved by the decomposition of vegetable matter is in a great degree made up of this gas. Faraday considers that ozone is always present, when water exists in the form of vapour. Ozone is rapidly diffusive, and thus eminently adapted for use as a disinfectant. It is not known at what degree of heat ozone is decomposed; Dr. Gregory states, that if "the air of a jar, charged with ozone, be made to pass through a tube which is heated by a spirit lamp, the gas, as it flies from the tube, no longer affects the ozonoscope." It is decomposed by heat, and this peculiarity, with that of its great oxidizing power, prevents its injurious accumulation in the atmosphere. Were this not the case, it would soon destroy not only the dead, but living animals and plants. The pungent odour, given off during the decomposition of water by the electric current, is due to the union of a minute quantity of ozone with the oxygen formed.

Ozone is most abundant in winter, and usually so in the morning. At such periods there is no heat to decompose, or noxious exhalations to consume it. Ozone oxidizes nitrogen, forming perhaps the protoxide of nitrogen; sea-air is fully charged with ozone. The exhilarating effect of morning and sea-air may be due to the presence of the protoxide of nitrogen thus formed. Its oxidizing nitrogen is most beautifully seen in the increased green of vegetation after a thunder storm. As early as 1785, Cavendish discovered that a succession of electric sparks, passed through atmospheric air, generated nitric acid; that the acid thus formed united with ammonia, and was in the rain-drop precipitated upon the earth. Guy-Lussac has confirmed this view. The increased green of vegetation, under the influences thus mentioned, is always beautifully apparent. Atmospheric air being thus subjected to electrical influences, generates ozone; ozone unites with the nitrogen of the atmospheric air and produces nitric acid; the nitric acid, in turn, unites with ammonia, and, as the nitrate of ammonia, descends in the rain upon the soil, nourishing and beautifying its vegetation. This makes perfectly intelligible the phenomena mentioned by Cavendish. The nitric acid, we thus see, is not formed, as was mentioned by Cavendish, by the action of the electric fluid upon the nitrogen of the air, but upon its oxygen in the presence of water, or watery vapour; and that ozone being thus formed, it next reacts upon the nitrogen, thus producing the results mentioned. It is ozone and not electricity which forms this nitric acid, and we have, in this, the explanation of the presence, in the rain-drop, of the fertilizing nitrate of ammonia. Ozonized atmospheric air, with lime water, produces nitrate of lime. When ozone has lost its oxidizing power, it resumes its chemical activity, when submitted, in a damp condition, to the action of the electric spark. This gives us a very simple, yet true, explanation of the extreme purity of the atmosphere after a summer s storm.

Ozone unites, without decomposition, with olefiant gas. It destroys sulphuretted and seleniuretted hydrogen. Sulphurous and nitrous acids are, by it, changed into sulphuric and nitric acids.—Although it is not known at what degree of heat ozone commences to be decomposed, it is known that at 268° F. it is entirely destroyed. At ordinary temperatures, charcoal decomposes it. Ozone decomposes the salts of protoxide of manganese and a solution of the ferrocyanuret of potassium. The sulphate of manganese becomes brown when subjected to an ozonized atmosphere. The sulphide of lead becomes white, and "the dilute solution of the blue sulphate of indigo is bleached" under the same influences. Silver foil, in a few hours, crumbles to dust, and is converted into a peroxide of silver when exposed to ozone in a pure and undiluted condition. Tincture of guaiacum is turned blue by its influences. The sulphurets of iron, lead, copper and antimony are converted by ozone into sulphates. It gives to the atmosphere chemically peculiar properties, and the bleaching effect of sunlight is solely due to it. The decay, diseases and deaths of animals and plants destroy ozone; the ammoniacal and sulphur gases of the atmosphere are oxidized by it and converted into salts. Ozone is absorbed by animal and vegetable substances; by albumen, casein and fibrin; by blood; by animal and vegetable miasmata. In this process, these substances are oxidized and destroyed. Ozone is thus the great purifier of the atmosphere. Many years ago, the eminent Graham made an assertion upon this subject, which (then discredited) is now fully acknowledged. After giving the views of Brewster, Ure and Davy; of Prout, Daniell, De Saussure and Hutton; of Priestley, Danbery, Boussingault and other well-known writers upon this subject, he declared "that, of the compound volatile bodies of the atmosphere, few can long escape oxidation; the atmosphere contains, within itself, the means of its own purification."

These are the principal and most interesting chemical properties of ozone: we postpone, for a time, its actions and agencies, and pass on to the consideration of its artificial formation and its great sources in nature.

It is easily formed, through the chemical actions and reäctions of phosphorus. Dr. Griffin has simplified this process, and we prefer to quote his method, as given by himself: "Take a piece of phosphorus about half an inch long; clean its surface by scraping; put it into a clean two quart glass bottle; add as much water as covers the phosphorus half way; close the bottle with a loose stopper and set it aside, at a temperature of about 60° F. Ozone will soon begin to form in the air of the bottle, and, in five or six hours, it will be abundant Remove the phosphorus, shake a little water in the bottle, and throw that out to remove the phosphoric acid. Repeat this washing several times. The ozone is not washed away, but remains in the air of the bottle." This is a favorite way of forming ozone in the laboratory; it is covenient, and very simple. The oil of turpentine, acted upon by the air of the vessel containing it, generates ozone, provided the vessel be subjected to the effect of the sun s light. The chemical agencies of magnetism and galvanism evolve ozone. A current of electricity, passing across the surface of water, produces it.

It should have been stated, in the method of forming ozone by phosphorus, that the air in the vessel should be of average barometrical pressure, and the temperature not under 50° F. or over 96° F. Ozone is not thus formed at zero; the formation beginning at 46° F., and becoming rapid at 75° F. Ozone is formed by an electrical machine, when in rapid motion; it is detected by its odour. It is said to be particularly evident near Ruhmkorff's induction coil. During the electrolysis of water, and under the presence of particular acids, ozone is always formed. The mixed gases thus produced always manifest the presence of ozone.

M. Le Roux states, that ozone is formed by heating platinum wire to incandescence, by the electric current Ozone may easily be formed with a little ether and a spirit lamp. Pour a few drachms of ether into a large bottle and shake the whole, that an abundant atmosphere of ether may be formed. Into this atmosphere, thus formed, plunge a glass rod (or platinum wire) heated moderately, and ozone is immediately formed. If the rod or wire be too much heated, ozone is destroyed as rapidly as it is formed. The most beautiful method of forming ozone is that mentioned when treating of the composition of ozone; placing a tube, filled with oxygen, over a solution of the iodide of potassium and water. When oxygen is electrified, by means of platinum wires in connection with an electric machine, it is, in the presence of this solution, converted into ozone. An ozonoscope, placed in the top of the glass tube, will prove this. The ozone thus formed attacks the potassium of the solution, and this, in its conversion into potassa, liberates the iodine associated with it; the iodine unites with the water, tinging it of a deep yellow; the ozone, being thus consumed, the solution (now deeply coloured) rises to fill the vacuum formed, and the surface of the water is depressed in the fountain. The measure of this depression represents the capacity of the tubes used. The method of forming ozone by electrifying pure dry oxgyen, is now doubted, and cannot be here mentioned as a means now recognized. When ozone is formed by the decomposition of water by the galvanic pile, it is always manifested at the positive pole. Scoutetten observes, that when phosphorus is plunged into a damp mixture, consisting of four parts of hydrogen and one of oxygen, ozone is generated with such rapidity that the phosphorus takes fire and the mixture explodes. Dr. Richardson, in common with many others, uses, in his experiments on the subject of ozone, the peroxide of hydrogen, formed by the action of pure hydrochloric acid on the peroxide of barium.

On account of the extreme interest created by Dr. Richardson's experiments, and from the general attention bestowed upon his researches in regard to this subject, we shall give, in detail, his method of forming the peroxide of hydrogen, or ozone. As one of the chief impediments to the therapeutic use of the peroxide of hydrogen has been its difficult and complex preparation, and as Dr. Richardson has very much simplified this, the following description will possess a value which those engaged in the study of ozone will best know how to appreciate.

"Make, first peroxide of barium, by heating in an iron or platinum cup, at a dull red heat, pure baryta. When the baryta is at a red heat, sprinkle over it dry pulverized chlorate of potassa, adding slowly about half as much of the chlorate as you have taken of baryta. After the chlorate has yielded all its oxygen to the baryta, withdraw the heat, and when the mass has cooled, put it into a closed bottle with distilled water, and wash well to remove the chloride of potassium. Be very cautious not to expose the peroxide of barium, thus formed, to the air; if you do, it will take up carbonic acid and fail afterwards. After thorough washing, decant the water and dry the peroxide slowly in a closed air furnace. The peroxide of barium, on drying, will be ready for use, and it should be used quickly. Next take twenty ounces of distilled water and add to it two fluid drachms and twenty minims of pure hydrochloric acid; then take two drachms and ten grains of the peroxide of barium; powder this in a glass mortar, and add to it a little water, to make it into a paste. Now add this paste, little by little, to the acid and water, stirring constantly. The paste will all dissolve up. The paste being now in solution, add slowly one drachm and a half of dilute sulphuric acid (one part of acid to two of water), and for a short time stir. On ceasing agitation, there will be a fine precipitate of sulphate of baryta; when this sulphate has subsided, filter the supernatant liquor. You have now made a solution containing one volume of the peroxide of hydrogen, with the hydrochloric acid, with which you started, free in the solution also.—Once more, add to the solution the same quantity of the peroxide of barium and the same quantity of sulphuric acid; filter and repeat the process again and again, until you have charged, to ten volumes of peroxide of hydrogen, the solution in use. To remove the hydrochloric acid ultimately, add, to your last solution, pure sulphate of silver; this will throw down chloride of silver and leave sulphuric acid (SO^3) in solution. Filter and carefully neutralize with the hydrate of baryta. The process is now complete."—(Autograph letter of Dr. B. W. Richardson to author, Jan., 1861.)

This remarkable substance was first discovered by Thénard in 1818, but the complex mode of its preparation and its unknown therapeutical, or physiological value, has served to keep it in almost total obscurity. We postpone its remarkable properties, until these form the chief subject of consideration.

We come now to consider an important and most interesting branch of our subject—the natural and extensive sources of ozone.

[TO BE CONTINUED.]

CLINICAL LECTURES.

Clinical Notes of Cases Treated in Different Hospitals of the Late Confederate States. By James M. Holloway, M. D., Louisville, Ky. [From private Case-Book.]

Case 1.—C. S. Hospital, Covington, Georgia.—G. B. L., private, 1st Texas Regiment, Co. M, aged 23 years, health good, farmer. Was struck by a ball in left leg, upper-third, Sept. 19th, 1863, at the battle of Chickamauga. Came under my notice March 29th, 1865. Patient states there was only one wound, situated one inch below and anterior to styloid process of fibula. This is still open and discharging a small quantity of thin pus. All inflammatory action has subsided; knee somewhat enlarged; patella drawn upwards; a small sinus exists over internal aspect of tibia, and introduction of probe discloses denuded bone; near these is a well marked depression in bone, covered by sound integument. Patient states that immediately after receipt of injury he noticed an elevation at this point, which disappeared under pressure by the finger. Probe readily passes into wound of entrance, and comes in contact with a slightly movable body, supposed to be a ball; no roughness of walls of cavity; examination of the discharge under the microscope discovers fibres of cloth. Patient able to move about, with the assistance of crutch or cane; unable, in the sitting posture, to extend leg upon thigh, owing to atrophy of ligamentum patellæ and recession upwards of the patella.

April 2d.—Not possessing Nélaton's probe, we were unable to decide, positively, as to the nature of the foreign body, but the indications for its removal were manifest.

Chloroform being administered, Surgeon Richard Taylor, of Memphis, enlarged the wound of entrance, by an incision parallel with the long axis of the limb, extending down to the bone. A strong pair of ball forceps was introduced, the foreign body seized and extracted. It proved to be a large sized minie ball, perfect in shape. The cavity was explored with the finger; its walls were perfectly smooth, and lined with a plastic lymph; it had been formed at the expense of the cancellated structure of the head of the tibia, much of which had passed out with the discharges.

April 9th.—No inflammation followed removal of the ball; sinus on internal aspect closed; wound of entrance filling up rapidly.

I met the patient at Howard's Grove Hospital, Richmond, during the subsequent Winter. The wound had closed; swelling of knee subsided; patella drawn still higher up; ligament very much atrophied, there being a distinct depression between the patella and tubercle of tibia; able to walk without the use of a cane, but still unable to forcibly extend leg upon thigh, though movements of the joint are free; experiences trouble in descending a flight of steps or slope, the left lower extremity giving way at knee-joint, when it is required to sustain the weight of the body in a semi-flexed position, in the act of stepping down upon the right foot—the body, at the same time, being inclined backwards. The depression on inner aspect of head of tibia is, evidently, the result of partial destruction of the outer compact plate, which resisted the exit of the ball. The elevation alluded to by the patient, and which subsided under pressure, was the point of the ball covered by the bone and soft parts. The denuded bone at bottom of sinus, mentioned above, had no connection with the cavity that enclosed the ball, but corresponded with the outer or periosteal surface of the tibia. He was instructed to support the knee by a bandage.

Case 2.—C. S. Howard's Grove Hospital, Ward P, 1st Division, Richmond.—M. V. B., private, 4th Arkansas Regiment, Co. F, aged 24 years; scorbutic from long confinement as prisoner of war. Received gun-shot wound in upper third right leg, one inch below tubercle of tibia, at Murfreesboro, December 29th, 1862. Upon examination, March 14th, 1865, (two years and three months afterwards) discovered a sinus, that barely admits the introduction of an ordinary sized Nélaton's porcelain probe. This sinus has been open since receipt of injury. The impression of lead is left upon probe when carried to the bottom of this sinus. The ball is not movable.

Having chloroformed the patient, a crucial incision was made through the integuments, the flaps dissected up, and the periosteum turned aside; a portion of the anterior surface of the tibia being exposed, an opening is found, not large enough to admit of the introduction of the little finger. The compact structure is very much thickened and the ball is firmly impacted beneath it in the cancellated structure. New osseous material has contributed to the diminution of the orifice of entrance through the bone, and the edges of the sinus are lined with a plastic material. A circular plug of bone was removed by trephine, and a large musket ball was pryed out with a lever. The walls of the cavity enclosing the ball were smooth. The plug removed was three-fourths of an inch thick, showing considerable hypertrophy of outer compact plate. The cavity was plugged with lint, and water dressings applied. Ordered anti-scorbutic diet.

March 25th.—Patient doing well; general health improving; cavity filling rapidly.

Case 3.—C. S. Chimborazo Hospital, Division 2, Richmond, Va. E. H., private, 6th Virginia Regiment, aged about 28 years.—Received a gun-shot wound of upper-third right leg, July 3d, 1864. Intense inflammation followed, but had subsided when he came under my notice in the following September. At that time he was able to move about on crutches. The orifice of entrance was still open and discharging pus. Nélaton's probe passed easily into head of tibia, and was moved freely about, encountering a quantity of loose rough material. No orifice of exit through the posterior aspect of the bone could be discovered, and the patient asserted positively that the ball had not been searched for. After a patient exploration, the impression of lead (only a narrow streak on one side of the porcelain ball) was discovered.

Having administered chloroform, the soft parts were incised until the opening through the bone was exposed, which was found to be too small to admit the introduction of the little finger. The edges of the opening were irregular, shelved and denuded; no effort at repair. A delicate pair of dressing forceps were introduced, and mass after mass of the spongy structure of the bone removed; finally the forceps engaged and brought away the missile, which upon examination proved to be the posterior segment of a peculiar character of minie ball, which is composed of three separate pieces—one fitting into the other. [I have searched in vain for a description of this character of ball in works on military surgery. Two of the pieces are hollow cones—one fitting into the other; the posterior piece has the shape of a wrought iron clinch nail, with the shaft cut off near the head. I have seen three separate wounds in the same person, inflicted by such a missile.]

No inflammatory action followed the operation, and patient was furloughed on the 14th of October.

The excellence of Nélaton's probe is plainly indicated by this case. Without it, I question whether the "tactus eruditus" of the books would have enabled the most experienced to discover so small a segment of lead, especially when, as in this case, instead of being impacted, it floated freely in a large cavity, filled with disintegrated spongy structure.

Case 4.—C. S. Chimborazo Hospital, Division 3, Richmond.—B. F., (regiment and company not noted) in charge of Assistant Surgeon Crump. In the Fall of 1864, I was requested by Dr. C., to examine this case. Found gun-shot wound upper-third right leg received three weeks ago. Wound of entrance discharging profusely; parts around acutely inflamed, nevertheless he was allowed to move about on crutches. Nélaton's probe discovered a ball lodged deeply in the spongy structure of the head of tibia and firmly impacted.

Chloroform was administered, and the wound, through soft parts, being enlarged, the ball, a large sized minie, was seized with a strong pair of forceps, and after repeated efforts, was extracted.

I left the case in charge of the Doctor, who informed me some weeks afterwards, that intense inflammation supervened, involving the knee-joint, followed by excessive discharge of pus, from the effects of which, the patient died in about two weeks. No post mortem examination was made, consequently the extent of injury to the bone cannot be stated. It is possible that the tibia has been fissured longitudinally, involving the articular surface. If so, the force employed in extracting the ball may have separated or widened this fissure. It is possible, on the other hand, that the removal of the ball, while inflammatory action existed, may have caused the unfortunate issue. In either view of the case, it should be borne in mind, that unless the ball can be removed immediately after receipt of the wound or before inflammation begins, it is more prudent, as a general rule, to await patiently for the subsidence of the inflammation. In simple flesh wounds, where balls are lodged superficially, it is not a matter of so much importance; but there is danger where the missile is deep-seated or lodged near important organs or large articulations. The same rule obtains here, that should guide us in amputations and excisions, viz., that operations (when circumstances admit of a selection of the time) should be either primary or fully secondary and never intermediary.

Case 5.—C. S. Chimborazo Hospital, Division 2, Richmond, Va. A. S. V., private, 5th Virginia Regiment, Co. F, aged 17 years, student, suffering from intermittent fever. Received a gun-shot wound of the right shoulder October 9th, 1864, ball passing antero-posteriorly through the humerus between surgical and anatomical neck. Since that time to the present date, (March 15, 1865,) the wounds have continued to discharge profusely, small fragments of bone being mingled with the pus. Upon examination, the probe passes freely through the bone. Suffers from periodic attacks of severe pain in the axilla, in the region of brachial nerves, which quinine does not relieve. Introduction of probe, through wound of entrance, which is in front, causes so much pain at the time, and for hours afterwards, as to require the administration of chloroform.

March 15th.—Under chloroform; enlarged both wounds down to bone, and found openings too small to admit the little finger.—(Patient states that he was wounded by a cavalryman.) Several small spiculæ were found along the track of the wound of exit, having been driven into tissues during transit of ball, or detached afterwards. Introduced a delicate pair of forceps, and removed a large quantity of pulpified spongy structure. Having completely emptied the cavity, exploration with a bulb-pointed probe indicated that the cancellated structure of the head of the humerus had been removed, leaving only the thin external compact plate, with its covering of cartilage; in other words, the head of the bone was completely hollowed out. Striking the walls of the cavity gave out a clear, ringing sound, that could be heard distinctly in all parts of the operating room.

It may be stated, as a point of great interest in this case, that there has not been the slightest inflammation of the scapulo-humeral articulation, and this joint is now, and has been all the time, as perfect as that of the opposite shoulder.

March 30th.—Still suffering severe pain, occasionally, along the course of the brachial nerves; otherwise doing well. He left for his home on the Peninsula, after the occupation of Richmond by the U. S. Army. His uncle (Dr. J. C. Vaiden) had immediate charge of the case; he will doubtless furnish his subsequent history.

ORIGINAL CORRESPONDENCE.

London, June, 1866.

PYÆMIA—OPERATIONS ON THE TARSUS AND ANKLE—THE SPHYGMOGRAPH.

Probably a few observations on "pyæmia," as it is seen and studied among us, may be acceptable to some of your readers. It is certainly a subject of vital importance to the Surgeon, as being often the cause of great fatality among his more serious hospital cases, but it can hardly be said to have been treated as yet, with as much attention as it deserves. Of late, however, there has been a considerable change in the views entertained as to the pathology of the disease. The old mechanical theory, which supposed that pus corpuscles, by finding their way into the circulation, obstructed the pulmonary and other capillaries, and thus produced pyæmic abscesses, is now almost entirely discarded. The chief evidence in its favour, was, I suppose, the comparative frequency of the pyæmic deposits in the lungs, where the pus cells might be supposed first to get into the capillaries, and to be in danger of being arrested in their course. But it is well known that pyæmic deposits may be found in any part of the body, as the liver, brain, kidneys, heart, intestines, bladder, cellular tissue, joints, &c.; and besides, it is also apparent that the pyæmic symptoms are not merely dependent on the formation of internal abscesses, but that they, more or less, precede these formations. These deposits, too, are hardly correctly described as abscesses, since they are at first solid masses of fibrin, and only soften later; often indeed, they scarcely soften at all, the patient dying before they have reached the stage of suppuration. They appear to begin as small patches of congestion, followed by stasis of the blood, and effusion of fibrinous material into the tissue, so as to form a tolerably firm mass, surrounded by a small portion of congested tissue. These masses are, generally, situated at or near the surface of a viscus. Soon they begin to soften in the centre, and to form abscesses, that is, if the patient lives long enough. Very commonly, on examining the lungs, for instance, of a pyæmic patient after death, we find a number of these deposits in different stages, some firm and solid throughout, others with a spot of purulent softening in the centre, and others again which have almost entirely broken down, forming abscesses close to the pleura, which latter often becomes locally inflamed. The deposits in some parts, as the kidney, are usually very small, appearing as little yellowish spots on the surface of the organ, when its capsule is stripped off. On section these are generally seen to be small wedge-shaped masses in the cortical substance, which soften in the same manner as the larger masses in the lungs and liver. Similar minute masses are sometimes found in the muscular substance of the heart, either near to the endocardial or to the pericardial surface; in the latter case sometimes producing pericarditis. There can be no doubt that some obscure cases of pericarditis have been cases of this kind, for the minute abscesses on the surface of the heart would almost certainly be overlooked, unless specially searched for.

It used to be thought that the rigors in pyæmia were due to the formation of abscesses; the rigors which appear early in the disease are, however, certainly not due to this cause, but rather are the result of blood-poisoning, like the rigors at the onset of typhus. In fact, the course of pyæmia is marked by a set of pretty well defined febrile symptoms, with considerable increase of temperature, rapid pulse, great depression, clammy perspiration and a peculiar odour; symptoms indicative of the introduction of a poison into the blood. We must, therefore, regard the pyæmic abscesses as effects following on the blood-poisoning, being produced by a modification in the condition of the blood, which renders it liable to stasis in certain parts, the vessels of the part being thus blocked up, and in fibrin then being effused. But what, it may be said, is the cause of this contamination of the blood? The common answer given to this is, the introduction of pus into the circulation. That pus is necessary, appears to be well established. I know that cases of alleged spontaneous pyæmia have been brought forward, but I know of no case in which the absence of suppuration as a primary condition has been proved, and there is every reason to believe that in these supposed spontaneous cases the primary suppuration has been overlooked. Not an infrequent cause of pyæmia is acute necrosis of a long bone, with suppuration beneath the periosteum, and unless attention has been called to local symptoms during life, this may very easily be overlooked at the post mortem table. But if the mere presence of pus were all that is necessary to produce pyæmia, we might expect it to follow almost all large wounds, especially of bone, where there are open vessels in contact with a suppurating surface; and it is manifest that a peculiar septic condition is required to render the pus capable of producing such poisonous effects throughout the system. This condition too, appears to be communicable, else, how are we to explain the succession of pyæmia cases, sometimes occurring in a hospital ward after it has attacked one patient? It appears to be pus in a peculiarly unhealthy, decomposing state, which is favourable to the production of pyæmia, and when this is established in one case it appears to have the power of producing unhealthy action in the wounds of other patients who are exposed to the same atmosphere, so that they secrete pus, similar in character, and which produces similar effects.

As to the causes which predispose to the production of pyæmia in the first instance, there can be no doubt that overcrowding of patients, and insufficient ventilation are most important. Pyæmia very rarely appears in a large well ventilated ward, with abundance of space, while in a ward not possessing these requisites, I have seen such a succession of pyæmia cases as caused the ward to be specially cleared out and thoroughly disinfected, and even after this process, another outbreak occurred.

Another important cause, I believe to be dead or decomposing animal matter, allowed to remain in contact with the living tissues in a wound. This contact of decomposing matter, (in the form of sloughs) appears often to vitiate the whole of the pus proceeding from a suppurating surface. Especially is this the case with dead bone., In a case of compound fracture of the tibia, for instance, some of the periosteum having been stripped off, a piece of the bone dies; this is allowed to remain in contact and continuity with the living bone and other tissues, and more particularly with the loosed cancellated tissue of the interior of the shaft of bone. The natural consequence of this is, that pyæmia is set up; and a large proportion of cases of pyæmia arise in this way. I believe that in conditions of this kind, "conservative surgery," from being carried too far, has tended to the production of pyæmia. It is attempted to save a limb, where the injury has been so great as to entail considerable destruction of bone, as well as of soft parts; the constitutional depression is very serious, and pyæmia sets in, whereas, if primary, or early secondary amputation had been resorted to, the patient might have been saved. Possibly, too, in some cases morbid poisons carried from the post mortem room or elsewhere, by the Surgeon or attendants, may set up pyæmia, at any rate we are not justified in neglecting any ordinary precautions against conveying poisons in this way.

I need hardly say that nothing satisfactory in the way of treatment has yet been made out. Of course it is possible, and no doubt it sometimes occurs, that patients may survive the general effects of the blood-poisoning in this, as in other febrile disorders, but even then, the secondary deposits are generally sufficient to cause death. Occasionally, where these deposits are only in parts within reach, as the joints, the patient may eventually recover, but such cases must be very rare. Indeed, in a large proportion of the cases, death seems to be the result of the general toxæmia, before the secondary effects are fully developed. A short time ago, the hyposulphite of soda was brought forward as a remedy, the belief in its efficacy being grounded on some experiments on dogs. I have seen this given and it has been tried in several cases, but as far as I can learn, with no good result. In fact, the drug appears, commonly, to produce nausea and vomiting. Turpentine has also been given, but with no better effect. Indeed, it appears evident that our efforts ought mainly to be directed towards the prevention of pyæmia, since it is certainly preventable, if not curable. To this end greater attention should be paid to the ventilation of our surgical wards, in order that, by an abundant supply of fresh air, the complete oxidation of the products of decomposition in wounds may be favoured. Also, we cannot too strongly insist on cleanliness in the treatment of wounds, and on special care being taken to avoid carrying animal poisons from one case to another. The speedy removal of all decomposed matters, especially necrosed bone, also appears desirable, as I have before indicated.

Operations for disease of the tarsus and ankle have lately been rendered more satisfactory than they formerly were. Many cases of disease of one of the tarsal bones are now cured by removal of the diseased portion, the rest of the foot being preserved. Chopart's operation too, which leaves the astragalus and os calcis, has proved very successful in cases where the anterior row of tarsal bones only is affected, while, when the disease extends to the astragalus and os calcis, or to the ankle joint, instead of amputating the leg, our Surgeons have for some time been in the habit of performing either Pirogoff's or Syme's operation. The former, so named from the distinguished Russian Surgeon who introduced it, consists in removal of all the foot, except the posterior part (tuberosity) of the os calcis, sawing off the ends of the tibia and fibula, and turning up the remaining part of the os calcis to unite by its cut surface with the cut surface of the tibia. This operation, however, has been almost discarded now in favour of Syme's operation, which is simply amputation at the ankle-joint, removing the articular surfaces of the tibia and fibula. In Pirogoff's operation, of course the shortening of the limb was less, but the difficulty of healing the stump satisfactorily was greater, the bones sometimes not uniting well, and the conditions being more favourable to the collection of pus in different parts of the wound—the tendo Achillis too, unless divided, giving trouble during the healing process, and often causing deformity afterwards. On these accounts, where the ankle-joint is irrecoverably diseased, Syme's operation is the one usually had recourse to. A modification of this has lately been practiced in one of the Scottish hospitals, which certainly renders it much simpler and is more expeditiously performed Perhaps the most tedious part of the operation, as commonly performed, consists in the disarticulation of the ankle-joint, and the dissection of the upper part of the posterior flap. This is avoided in the plan I am referring to, for after the dissection of the anterior flap, instead of disarticulating, the operator saws through the tibia and fibula just above the joint, and then proceeds to dissect the posterior flap, which completes the operation. The operation is thus not only shortened by the whole length of time required to disarticulate the ankle, but the dissection of the posterior flap is also rendered much easier from the malleoli not being in the way.

Our attention has just been called to another modification of these operations on the foot, by Mr. Hancock, in his lectures as Professor of Surgery, at the Royal College of Surgeons. Mr. Hancock's operation is only applicable when the ankle-joint is healthy. It is really Pirogoff's operation, modified by leaving the greater part of the astragalus, the lower part of this bone being sawn through, instead of the lower ends of the tibia and fibula, and the foot being removed with the greater part of the os calcis—the tuberosity of the latter bone being brought up to unite with the lower surface of the astragalus. In this operation there is very little shortening of the limb. A man, on whom Mr. Hancock had operated in this way, about six months ago, showed his limb at the College, in a very satisfactory condition, with only half an inch of shortening. Another operation, to which Mr. Hancock called attention, and of which he adduced successful cases, is excision of the astragalus, in cases where this bone alone is diseased, or where it has been dislocated. After this operation, a new ankle-joint is formed from the tibia and fibula coming down upon the upper surface of the os calcis, and there results a very useful foot, in which the natural movements are but little impaired.

The sphygmograph has recently been exciting some attention in this part of the medical world. The first sphygmograph appears to have been constructed by Vierordt, but on account of its not being sufficiently sensitive to register accurately the differences between the diastolic and systolic periods of the pulse, it has been superseded by one devised by M. Marey. The latter consists of a frame which is to be fixed to the forearm, with a very light steel spring by means of which, pressure upon the artery at the wrist is effected, the spring terminating in a plate of ivory which is applied immediately over the artery, and its pressure upon the latter can be adjusted by means of a vertical screw. The upper part of this screw is connected with a long lever which forms the index, this attachment being very near to the fulcrum of the lever, so that by the movements of the distal end of the lever, the movements of the artery are very considerably magnified. The point of the index scores its waves upon a piece of smoked glass, which moves evenly forwards by clock-work, and the character of the pulse is thus registered, its systole and diastole, and the character of each being accurately distinguished by the character of the upward and downward wave respectively. The value of this instrument will be seen if we consider how greatly medical opinions often vary with regard to the character of a given pulse. It is too much, however, to suppose that it will ever supersede, in ordinary practice, the common method of "feeling the pulse" by means of one's fingers.

PARIS, June, 1866.

I am indebted to the courtesy of Professor Racle, for the following clinical fact, hitherto unpublished, which is the result of a long series of observations in hospitals ooccupied by children. In young children, scabies is usually followed by death. The sulphuretted pomatum employed to check the disease, is accused of this fatal termination. Of course this opinion is groundless, and M. Racle explains the cause of death as follows: In France it is customary to wrap the children in swaddling clothes. The warmth occasioned in this manner produces a degree of prurigo scarcely supportable.—Young children being unable to scratch themselves, the anguish becomes so excessively severe, that they die from the intensity of the pain they suffer. The chief remedy evidently consists in prophylactic means, the indication being to prevent the handling of children by persons affected with itch, and in this connection, M. Racle insists that in the selection of a wet nurse, as much attention should be given to having a woman free from scabies, as to find a subject exempt from syphilis and other diseases.

In the February number of your Journal, there is an observation, by W. B. Kesteven, Esq., of Upper Holloway, of delirium tremens successfully treated by the tincture of digitalis. In 1864, I saw in the wards of M. Velpeau's service, two cases of a similar nature, where benefit was derived from the use of this agent. As the dose was larger than that administered by Mr. Kesteven, I append the two following observations, with the remark, however, that in both of these instances the five drachms were given in the course of twenty-four hours:

Obs. No. 1.—About the middle of September, 1864, a patient was admitted to be treated for a diffused phlegmon of the leg. He had long indulged in intemperate habits, and after remaining in the hospital for a few days, he was taken with a violent delirium tremens. Five drachms of tincture of digitalis were ordered to be given in twenty-four hours. The next morning, the delirium had abated considerably, and the patient had had a little sleep during the night. The same quantity of the tincture was again prescribed, and the succeeding day the patient was found free from delirium, and it was ascertained that he had rested several hours. He appeared dejected and fearful, but these vestiges of excitement disappeared in the course of the day.

Obs. No. 2.—In November, 1864, a waiter in a coffee-house entered the hospital, with an inflammation of the lymphatics of the leg. Like the patient in the preceding observation, he admitted being in the habit of drinking to excess. Some time after his admission, he was taken with alcoholic delirium, and so violent did he become, that it was found necessary to apply the straight-jacket.—At the visit, injections with laudanum were ordered to be given, at intervals, through the day. The next morning, the patient was found in the same condition; he had passed a sleepless night; pulse 133. Five drachms of tincture of digitalis were prescribed as in observation No. 1. Twenty-four hours later, the delirium had so far subsided, as to permit the removal of the straight-jacket. The pulse had gone down from 133 to 68. The night had been good; the man had been quiet, but his answers were still, at times, incoherent. The same dose of the tincture was again ordered. At the succeeding visit, there were no traces of delirium to be observed, and up to the time of discharge, this accident did not return.

M. Koeberlé, of Strasburg, has published lately an account of a case of polypus of the larnyx, treated successfully by laryngotomy and cauterization. In M. Koeberlé's case, the patient was a locksmith, aged 57, who had never contracted syphilis. The laryngoscope showed an œdema of the aryteno-epiglottidean folds, and an ulceration on the free edge of the left inferior vocal chord.—The right vocal chord had disappeared, and it was replaced by a condylomatous vegetation and tumefaction. The glottis was irregular, deviated to the left, and strictured antero-posteriorly. Its movements were almost completely abolished.—Owing to the danger of suffocation, laryngotomy was decided upon, and performed on the 13th June, 1865. When the thyroid cartilage had been reached, it was perforated by pressure with one of the branches of an ordinary pair of scissors. The larynx was then opened freely, and the two halves of the cartilage were kept apart. A dressing forceps, with a sharpened edge, served to remove the tumour, which was as large as a walnut. The principal fungus covered the whole of the right inferior vocal chord, and other smaller vegetations existed in different portions of the mucous membrane. Little by little, the diseased parts were taken off, notwithstanding some loss of blood. By means of the microscope, the tumour was ascertained to be of papillary nature. The next day, the acid nitrate of mercury was employed as a caustic. This operation was repeated several times. Owing to partial necrosis of the thyroid cartilage, a tube was not introduced until three weeks later. Gradually the patient improved, and his present condition is satisfactory except that his voice is lost, and that he is obliged to speak in whispers.—There exists a certain degree of stricture at the upper part of the trachea, which does not, however, offer an obstacle to breathing.—Dr. Koeberlé's observation is followed by some remarks upon the paucity of similar cases. He says that up to the present day, laryngotomy has been employed only about twenty times for fungus productions of the larynx, the first operations having been performed in 1833 and 1844. The small number of facts of a similar nature on record induces me to present the following notes of a case which Dr. Ozanam had the kindness to invite me to see in 1864–5.

Mrs. P., aged 40, was attacked five years ago with hoarseness, and, little by little, her voice became extinct, and at the same time, there existed considerable dyspnœa. In April, 1863, examination with the laryngoscope showed two fungus productions of a pinkish-white hue, with a mammillated surface, symmetrically placed on each side of the mœsial line, beneath the inferior vocal chords. In the month of June of the same year, two sittings were devoted to the extraction of the fungi, with M. Mathieu's polyptome, and the voice was entirely recovered. On inspection, it was evident that the whole growth had been removed. The tumour was constituted by papillary hypertrophy. Until the close of October, there was no return of the disease. On the 25th of the month, Mrs. P. contracted a fever, which lasted a fortnight. During convalescence, her voice, which was quite clear and natural, began to undergo alteration, and in three months the dyspnœa was so intense that sleep became impossible, and the patient was unable to attend to her usual avocations. On examination with the laryngoscope, a large number of vegetations were visible, filling the glottis almost completely, and presenting different stages of vascularity. On the 29th February, 1864, Dr. Ozanam invited me to assist at the extirpation of the polypi, which he performed in the usual manner, repeating the operation several times, at intervals of five days. It soon became evident, however, that the fungi were reproduced rapidly on the very spots they had formerly occupied. When this discovery was made, each extirpation was followed by cauterization, with a solution of one tenth of chlorate of potassa in glycerine, which had met with some success in epithelial cancers. Six cauterizations were applied in one month, and the tendency towards reproduction diminished so far, that at last only one vegetation remained. On the 18th March, a phlegmonous inflammation of the retro-laryngeal areolar tissue set in, and after several weeks, a large abscess evacuated its pus through the mouth. During several months after this complication, the polypi began slowly to be reproduced, and in February, 1865, the patient was again compelled to cease working. From that time, she gradually grew worse. There were frequent and violent fits of suffocation; dizziness often occurred, and occasionally the fungi would bleed slightly. The diminution in volume attendant upon this depletion, afforded temporary relief. One part of chromic acid, in five parts of water, were rubbed upon the anterior aspect of the neck, until blistering was produced. By this means, several fragments of the tumours came away. The patient finding herself in so distressing a condition asked to have the operation of laryngotomy performed. On the 22d of April, Dr. Ozanam invited several gentlemen and myself to aid him in the operation.—M. Chapman's method was followed. The laryngotomy was performed at 11 A. M. Two large thyroid veins, coursing in a parallel direction with the larynx, were marked out with lunar caustic, and the incision of the skin and subcutaneous tissues was made between the two, so as to avoid hæmorrhage. The thyroid cartilage and the crico-thyroid membrane were cut open vertically, the most apparent vegetations immediately removed, and the silver tube introduced. As this introduction had been difficult, and accompanied by suffocation, the patient was allowed to rest until 5 P. M., when the tube was removed, the borders of the wound and the edges of the thyroid cartilage being separated as much as circumstances would permit. Whilst exploring the laryngeal parietes, the larger polypi became detached. Two of the fragments had the volume of a good sized pea. A rapid cauterization was made with a camel's hair brush, dipped into a solution of one part of chromic acid to nine of water. This acid was employed, owing to its special action upon vegetations. The brush was twice introduced; first, as far up as the base of the tongue, and a second time to some distance down the trachea. When the suffocation produced by the cauterization had subsided, the anterior aspect of the neck was covered with a coating of potter's clay, mixed with glycerine, this preparation warding off the contact of the air, etc., and lessening the danger of erysipelas. Five minutes after the cauterization had been employed, the patient had nausea and began to vomit. This lasted three quarters of an hour. Two or three hours later, a violent itching all over the body, accompanied an eruption similar to urticaria.—That night at 11 o'clock, there were several swoons, one of which lasted five or six minutes. All these accidents disappeared, save the itching which lasted three days. For forty-eight hours after the operation, the pulse beat 90 to 95 times. The third day, chill and pulse 126. A draught containing arnica was ordered and continued a week. Forty-eight hours after the chill, the pulse had fallen to 80, and did not again go above that number. The laryngoscope permitted the silver tube to be seen through the glottis.—The examinations were made with regularity, and on the right side a large vegetation was visible, which owing, to its appearance, seemed to have been imperfectly cauterized. The seventh day after the introduction of the tube, a fresh cauterization was effected; this time, one part of acid diluted with five parts of water being employed. This mixture was too powerful, and the spasm proved so violent, that the patient might have succumbed, had not an artificial channel for the air existed. The accidents observed after the first cauterization occurred again. The patient vomited, swooned; had an eruption of urticaria and itching, which now lasted a week.—There was also expectoration of false membranes, moulded into the shape of those parts of the trachea which had been touched by the acid. Similar sputa had been observed to accompany the former series of accidents. The polypi now began to disappear, some fragments being expelled by the act of coughing, and others being carried off by suppuration. On the 5th May, the patient left her bed. On the 25th of the same month, after a final examination with the laryngoscope, and on being assured of the complete destruction of the vegetations, the tube was removed, and the opening closed with strips of adhesive plaster dipped into collodion. In eight days, the wound was healed. I visited Mrs. P. this week, and I was assured that her general health had improved since the operation. She performs the duties incumbent on her position, walks, etc., without fatigue, and the only vestige left to mark the disease is a little hoarseness. Dr. Ozanam had the observation published, with full details, last August.

In a review that appears yearly, with the object of presenting the progress made in the different branches of medical science, Dr. Garnier devotes a few pages to the subject of laryngotomy in cases of polypus of the larynx. He furnishes a list of fourteen operations, four of which were performed before the introduction into practice of the laryngoscope, and the remainder since its employment. In this list he names three gentlemen of New York, making mention of two operations, by Dr. Buck, one by Dr. Sands, and another by Dr. Gouley. In 1851, Dr. Buck operated twice for an epithelial cancer of the larynx. The patient died thirteen months later, having never recovered his voice. In 1862, Dr. Buck performed a similar operation on a man of twenty-five years, and up to the beginning of 1866, the success had remained perfect. In Dr. Sand's case, the voice had been restored; twenty-two months later, however, the young woman died of cancer of the supra renal capsules. At the post mortem examination, the larynx was ascertained to be perfectly free. To the list offered by M. Garnier, it becomes necessary to add the observation published by Dr. Ozanam, last August, and the one M. Koeberlé sent recently to the "Gazette des Hôpitaux." Besides the fact described above, in 1845, at the Hospital "Necker," Dr. Ozanam saw a man of thirty-six years, who was cured after having thrown up, whilst coughing, two vegetations with small pedicles. I am indebted to Dr. Ozanam for the following notes of a case he attended in 1851: In the month of February, he was consulted by a gentleman, 53 years old, who was in Government employ. This person had completely lost his voice, and he labored under much dyspnœa; his general health was good. Living at some distance from Paris, he daily went and came two leagues, being frequently exposed to the inclemencies of the weather, on the top of an omnibus, and the cause of hoarseness might here be attributed to atmospherical agencies. Divers methods of combating inflammation of the larynx were unsuccessfully employed. Flying blisters and frictions with—℞ Balsam of Fiorarenti f. ℥ ij., Camphorated Alcohol f. ℥ ij., Extract of Belladonna gr. x.; rendered no service. Next, the throat, and even the larynx, were cauterized with graduated solutions of nitrate of silver.

The disease continued making slow progress, until the dyspnœa became so intense, that the subject of these lines gave up residing in the Country, and came to live in Paris. With these symptoms, and although the laryngoscope had not been invented, Dr. Ozanam diagnosticated a tumour of the larynx, and owing to the age of the patient, he feared its nature might be cancerous. The family was alarmed, and called Professor Rayer in consultation on the 20th March, 1851. M. Rayer, after examination, pronounced the disease to be chronic laryngitis, with thickening of the mucous membrane. He ordered two cauterizations with a red-hot iron on the sides of the neck. This plan of treatment was followed by Dr. Ozanam, though without much hope of success, and the cauterization was applied in such manner as to permit the performance of laryngotomy, in case that step should become necessary. The next morning, the dyspnœa was so violent, that the patient swooned. Between two of these fits of suffocation, the operation was performed at noon the same day. The thyroid and cricoid cartilages were cut open on the mœsial line, but at this moment, a new complication presented itself. Notwithstanding every effort, the knife could not be made to penetrate into a cavity, and there was no whistling sound to announce the passage of the air through the new channel. The obstacle was found to consist in an enormous tumour occupying the whole of the anterior parietes of the larynx. This tumour was nearly half an inch in thickness, and it was necessary to cut through it in order to be able to introduce a tube. Several fragments had been expelled by coughing. They resembled vegetations, and Professor Lebert declared them to be of cancerous nature. The patient was greatly relieved, and he breathed freely through the tube. Unfortunately, however, the suffocation had gone too far before the operation. It had caused so intense a congestion of the brain, and such disorders in the pulse which beat 140 times, that the equilibrium could not be restored, and the patient died on the 22d of March, thirty hours after having been operated on.

An interesting case lately occurred in the wards of M. Triboulet at the "Hôpital Sainte Eugenie," the details of which were published by my friend, M. Causit, residing student attached to the service. On the 5th January, of this year, was admitted a little girl two years and a half old. Her father and mother had died of pulmonary disease. The child had been voiceless since her birth; breathing had always been a little difficult, and there was an occasional cough. These symptoms had increased during the last two months, and from time to time, there was suffocation towards evening. Respiration was loud, and accompanied by a laryngo-tracheal wheezing. The voice was completely lost; the cough resembled croup. Percussion and auscultation furnished no indications, save a diminution of the respiratory murmur. The inspection of the throat, showed nothing amiss; pulse 116. That morning there had been a fit of suffocation. The idea of croup was rejected, as the disease had existed since the time of birth. A foreign body could not have been situated in the ventricles of the larynx, from the moment the child was born. Tubercles were thought of, but this cause was also eliminated, for were such the fact, the general health would have suffered, and to all appearance, in the present case, the child was lively, and of good constitution. The diagnosis was, therefore, established by exclusion. Congenital affection—probably a polypus of the larynx.

Dyspnœa and suffocation continued to increase. On the 9th January, two examinations were made with the laryngoscope. No result was obtained, and the introduction of the instrument caused great distress. That evening, pulse 160. From this date, the patient was made to throw up at intervals; the pulse continued high. She gradually grew worse, and on the 17th leeches were applied to the sides of the neck, to combat the difficulty of breathing, which had become excessive. On the 21st, prostration, pulse 136, considerable dyspnœa. The respiratory murmur was hardly audible. There existed a little sub-matity at the posterior portion of the base of both lungs. From the intensity of the symptoms, tracheotomy was deemed indispensable, and the operation was performed. At the evening visit, it was evident no relief had been obtained. Auscultation revealed the presence of pneumonia, at the posterior portion of the base of both lungs. On the 22d, the child was worse; pulse quick and thready. Death occurred that night. At the post mortem examination, the lungs offered the lesions of pneumonia. With a scalpel, a small quantity of an oily liquid was obtained from the liver; the other viscera healthy. The cause of death was found, as had been suspected, in the larynx. Its upper orifice was almost completely closed by clott of a white aspect, easily removed with forceps, and which were evidently fragments of a large vegetation, with a mammillated surface, and of a dense tissue. This tumour had the size of a small walnut, and was inserted along the whole length of the left inferior vocal chord, extending its pedicle even further down than the chord. Smaller eminences extended from the main tumour to the posterior commissure of the glottis, and to the superior vocal chord. The opening of the ventricle, on the same side, was covered by the vegetation. There was one mammillated point on the posterior aspect of the epiglottis, and a few asperities on the right inferior vocal chord. The microscope showed the tumour to be formed by a proliferation of the pavimentous epithelial cells, which exist normally on the inner aspect of the vocal chords. Here, however, these cells, and their nuclei were larger than usual. M. Causit remarks that epithelial tumours of the larynx, existing from the moment of birth, are very rare, and that besides his observation, he knows of only one other instance, which Dr. Dufour published last October.

The debate upon lying-in hospitals, at the Society of Surgery, has come to an end, and publicity has been given to the following conclusions:

Puerperal diseases are more frequent in lying-in hospitals than elsewhere, and the existence of this fact, in every Country, shows the influence due to hospitals. Little by little, the practice of domiciliary accouchements should be introduced, and lying-in hospitals finally abolished.

The excess in the proportion of deaths, which sometimes rises above the ordinary limits, and is then called an epidemic, is due to infection and contagion. The principal means of reducing the mortality, would be the adoption of prophylactic measures. Cleanliness must be opposed to infection. Each bed, after one occupation, should be scoured, and the wards themselves be aired and purified from time to time. To prevent contagion, if it be impossible to place each healthy woman in a separate room, at least the wards should be well ventilated, should not communicate, and should contain, at most, four beds.

In case a delivered woman becomes sick, her removal from the uncontaminated, should be immediately effected. In the infirmary, there should be only one patient in each room, and the health service should be distinct from that of the lying in hospital. If, notwithstanding these precautions, an establishment be threatened, its immediate abandonment must be decided upon, and a general system of purification adopted. Such abandonment ought to be left at the discretion of the health officers, and it should not be under the controul of the hospital administrators.

In localities where it is not, as yet, possible to do away with special institutions for delivery, these institutions should contain but few patients, and should be numerous, so as to permit their alternately coming into use.

M. Depaul protests against the adoption of these conclusions. He says at the present day, it is premature to decide that puerperal fever is contagious. This doctrine may be condemned a few years hence. He remains in suspense as to the contagious character of puerperal fever. He does not share in the opinion of those who deny that puerperal fever is epidemical.

An interesting item of medical news, is the formation of the bureau for the International Medical Congress, to be held in this City next year, during the Universal Expositions. The bureau is composed of—President: M. Bouillaud; Vice Presidents, Messrs. Denonvilliers, Gavarret, Tardieu; General Secretary, M. Jaccoud; Treasurer, M. E. Vidal.

The following gentlemen form the Central Committee:

Messrs. E. Barthez, Béclard, Béhier, Bouchardat, Bouillaud, Broca, Dechambre, Denonvilliers, Follin, Gavarret, Gosselin, Jaccoud, Laséque, Louget, C. Robin, Tardieu, Verneuil, E. Vidal, Wurtz.

THOMAS LAYTON.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Principles and Practice of Obstetrics. By Gunning S. Bedford, A. M., M. D., Professor of Obstetrics, the Diseases of Women and Children, and Clinical Obstetrics in the University of New York, &c., &c. Illustrated by four coloured Lithographic Plates and ninety-nine wood Engravings. Third edition, carefully revised and enlarged. New York. W. Wood & Co. 1866.

When men like Dr. Bedford, occupying positions of prominence and distinction, which command and demand respect and admiration, "make a sign for posterity, in the shape of a book," with the "one cardinal object to be useful," it is due alike to the author and to the subject on which he writes, that a respectful consideration of his views and work should be expressed; we shall, therefore, use the liberty proper to us, and pass under review his work, eulogizing what is commendable and censuring all that is objectionable.

With unaffected sincerity we affirm that there is much more in his work to commend than there is to condemn. His virtues, which we appreciate, are much larger and more numerous than his faults, which we ought perhaps to ignore, but this would not be appropriate in reviewing a work which had reached its third edition in thirteen months, and that had "already been recommended as a text-book in nine of our medical schools." Modest and diffident truly great men always are, but the author, under the influence of the flattering facts announced in his third preface, is guilty of the error of self-laudation. It is essentially necessary to make a rigid examination of this work which is to be the Guide, Adviser and Friend of the unwary Student, so apt to receive the ipse dixit of a charming and delightful writer.

One is startled to find in the very first sentence of this work, which is to be the text-book of perhaps all the schools, not a blunder of inattention, but an error of fact and truth: the author informs the reader that "the Science of Midwifery is an exact Science." In these days of development, one hardly knows what statements to accept, but according to the teachings of other days, Midwifery was an *Art*, not a *Science*. Midwifery is Art; Obstetrics is Science. In a volume of 727 pages, most of which are devoted to the demonstration of the fact, that there are almost as many exceptions as rules, it is startling to read a statement so erroneous.

There is the usual teaching as to the anatomy of the pelvis and fœtal head, set forth very intelligibly and instructively. The style is lucid, clear and demonstrative, free from much of the familiar language with which the thoughts of most writers are clothed; nothing stiff—nothing hard. The author's classification of the presentations, is more simple than Baudelocque's, being after the manner of Naegelè.

On page 56 the reader will find a most valuable hint touching the handling of the forceps in cases of instrumental delivery. It saves the patient much pain and the Physician much embarrassment.—On the subject of deformity of the pelvis, which is, from increased capacity, a very frequent occasion, if not cause, of prolapsus uteri, the author advises the use of "a soft India-rubber ball as a pessary." The author must, in this advice, have consulted convenience rather than Science, and seems willing to sacrifice permanent benefit to convenience. He says, in note to page 58, that he is "partial to the India-rubber ball." Before its introduction, it is pierced to allow the air to escape; then folding it lengthwise, and lubricating it with oil, carry it into the vagina, being careful that the orifice looks downwards; the ball immediately fills with air and forms an admirable support to the uterus. This is very convenient, but objectionable teaching, and must receive the condemnation of the Profession, which is exercising its ingenuity and skill in the construction of pessaries, free from the least possibility of taint or liability to erosion. No material should be used which requires the daily removal of the pessary, for the purposes of cleanliness and comfort. It is equally objectionable to adopt any system of relief which is based upon the incorrect and dangerous assumption, that a woman is capable of correctly introducing and adjusting a pessary. To quote the words of the author, theory and scholastic teachings "may appear well enough in books; but if these books be intended to aid the practitioner in the sick room, they would, in my opinion, have more effectually accomplished the object by elaborating what is really practical * * * * which will not *only abide the test of the bedside*, but will constitute so many lights to guide the medical man when surrounded by embarrassment, or lost for the time in obscurity."

On page 70 will be found instructions for "touching," in which the author fails to secure the best use of the exploring finger. He directs that the thumb should be placed in the palm of the hand, and the three fingers covering the thumb closely, while the index is free. In this position of the thumb and fingers, the hand is in the fist form, and in all women, especially in the obése, the fist encounters the nates, and, to some extent, prevents the fullest reach of the index. If the examiner will extend the hand fully, with the three fingers separated from the index, (the index passed into the vagina,) the three fingers thus extended, pressing upon the yielding perineum, will drive it before the hand, and enable the index to reach a higher point in the vagina, than if the hand be folded up as directed.

On page 70 occurs one of those instances of deplorable and regretted evidences of bad taste that should not escape censure. "I have known instances in which the vaginal examination had been attempted, without regard to any rule or principle; the hand, with the fingers separated, carried toward the vagina, one finger perhaps finding its way into the meatus urinarius; another pressing upon the clitoris, while the third would be on the outer boundary, if, indeed, it did not penetrate the anus itself, constituting in all truth a *fundamental* operation and causing the patient to rebuke, in severe language, the operator for his stupidity and ignorance." This indecorous and offensive attempt at wit has not for its extenuation even the merit of originality. It is utterly unworthy of the author and the subject, and while, in the class-room it might possibly be endured, in a lecturer, who desired to be amusing and popular, it cannot escape the "severe rebuke" of the reader. The teacher of obstetrics should always cultivate, in the mind of the Student, the highest appreciation of a refined and elevated phraseology, and not accustom him to associate, with the manipulations of the obstetric chamber, thoughts that are unworthy of the place and employment.

The author surprises the reader in announcing that the vulva is an "opening extending from the mons veneris to the anus."

He comes in conflict with Dr. Dalton in his opinions as to the locality of the fecundation of the ovum. Dr. Bedford holds that fecundation takes place at the ovary; Dr. Dalton holds that it takes place in the Fallopian tube.

In reply to heterodox views advanced, the author very emphatically denies that "menstruation is the offspring of civilization," and cites (Genesis, chap. xxxi,) Rachel's allusion to "the custom of women" being upon her, as a reason why she did not rise up before her father, as an expression of respect for him.

Page 107, on "aptitude for impregnation."—"Woman then is *most apt* to become fecundated at the particular time, when the ovule, in all its development, lies on the surface of the ovary * * *just before* the catamenial crisis." He cites the case of Henry II., of France, and Catherine de Medici, as an illustration.

On page 306, per contra, he writes: "I think the fact is very generally conceded that the most likely time for a female to become fecundated is *immediately after a menstrual crisis.*" This contradiction should be corrected.

Lecture viii, on the general subject of reproduction, is highly interesting and of great value. Lectures ix, x, and xi, are equally well worthy of careful and diligent examination.

The author, in his spirit of charity and consideration for the ignorance and inexperience of the Student, most thoughtfully enters into minute yet important details to relieve and disembarrass the reader of many trials and vexations. He is commendable in this. Too few authors remember that they were once ignorant; yet sometimes his minutiæ become amusing. (see page 199.) In answering the question, "How are you to find the vagina?" in an examination, his instructions are very exact. The Student is told that the woman should be covered; the "index finger carried to the internal and central surface of the knee; thence down the median line of the thigh as far as the vulva, to the central portion of the labium; push the finger to the right or left, and it enters at once into the vagina." The Student would be able, in this exploring expedition, to find the labium quite as easily and quickly "as the internal and central surface of the knee," and save the patient from that other trial of "conducting the finger carefully along the median line of the thigh."

On page 258, the author carelessly makes the following statement: "The venous blood is converted into arterial, which is conveyed through the pulmonary veins to the left ventricle!" This error occurs when giving a minutely accurate description of the circulation of the blood in the adult.

Lecture xix, on abortion, is most admirable, and should be studied. The author advises the medical attendant, in the event of alarming prostration from loss of blood, to give teaspoonful doses of laudanum and brandy every ten, twenty or thirty minutes. The prudence of such practice will be questioned by many.

Dr. Bedford is remarkable, as a lecturer, in amusing, as well as teaching his class. He now and then flashes out, in the duller prose of a printed lecture, with anecdote, or illustration, or amusing advice. In the grave and serious discussion of the conduct of a labour, he solemnly warns his pupil against putting the child into an arm chair, as is the manner of some, lest it be "crushed by the weight of some good dame, who may seat herself in the comfortable chair— thus intruding upon the little stranger's rights of hospitality, and at the same time giving it a *pressing* welcome."

On page 371, valuable lessons and encouraging hopes are inculcated in the conduct of cases of asphyxia.

Who that has been annoyed by the hour-glass contraction, will not thank the author for the method he adopts for relieving this vexation, which he has not "seen mentioned by any author, and to which he attaches more than ordinary importance;" viz., the introduction of a small piece of conical sponge, saturated with olive oil, and applied within the stricture.

The next lecture brings the reader most choice and valuable lessons in relation to post-partum hæmmorrhage. No better advice could be given than to read, consider and inwardly digest every word of it.

The entire teachings of the author, in connection with the parturient woman, are characterized by great good sense; but most obstetricians will dispute the statement that a failure to retain the recumbent posture for ten days, will necessarily lead to displacement of the uterus. The author offers good advice, and it should be made the rule; we may advise, and with this course our responsibility ceases.

On the subject of "weed or ephemeral fever," the author startles us by the activity of his treatment. He states that this is not a disease of peril, and unless accompanied by serious complications may be regarded as unimportant, so far as the safety of the patient is concerned. Yet he treats it as follows: Submur. Hydrarg. grs. x, Jalap grs. xv, Pulv. Antimonial grs ij., to be followed in six hours by Ol. Ricini f. ℥ i., or Sulph. Magn. ℥ i., this to be followed by Liq. Ammon. Acetat. f. ℥ ss., every two or three hours. He then informs us that the patient is usually left in an *extremely prostrated condition.*

The author s language is open to just criticism, when he states that "this lady I confined three times."

After citing the statistics of the Dublin Lying-in Hospital, under the mastership of Dr. Collins and Dr. Sheckelton, (page 568,) by which it appears that in thirty thousand one hundred and sixty-two deliveries, the lever was used but four times! he says, "how strangely do these statistics compare with what we are so much in the habit of hearing, in these latter days, of what occurs in the private practice of certain medical gentlemen, who speak of their almost *daily* use of the vectis, forceps or crotchet; precisely as if a man's skill in the lying-in room is to be measured by the frequency with which he resorts to instruments! I believe in the converse of this proposition; to my mind the truly skillful accoucheur rarely (comparatively, at least,) employs instruments, for the obvious reason, that in the first place, he is thoroughly imbued with the knowledge of the laws, by which Nature is regulated in the parturient effort; and secondly, he is cognizant that when not interfered with by officious meddling, this same Nature is generally adequate to the proper accomplishment of her work." "Suffice it to say, that the obstetrical arsenal, so far as the number and kind of forceps are concerned. is not only a vast armory. but has really become an institution in itself; and indeed it may be asked. with some degree of propriety, whether the interests of humanity would not have been more wisely served if some of the time employed in the construction and modification ot this instrument, had been given to the proper consideration of the more important question: *Under what circumstances and in what manner are the forceps to be employed?* If this question, I repeat, had received more mature deliberation, we should have been spared the numerous appalling examples of injury and death, consequent upon the unbounded love which some practitioners have for instrumental delivery. It is true that plain language should be spoken on this subject; the spirit of conservative midwifery seems to have been lost in sleep; the ordinances of Nature have been disregarded, and the accoucheur, with instrument in hand, rampant in his desire for opportunity, rushes with good heart and unmeasured confidence to what he deems the scene of conquest; but too often, alas! it proves a scene of harrowing agony to the unhappy patient.

"One would almost think that Nature had been emasculated of her power, and that what were once considered her own admirable laws, had been so changed, and she so utterly deprived of resources as to render parturition no longer an act of hers—to be accomplished in her own consummate ordinances—but an act to be carried out according to the peculiar caprice of the accoucheur. Nature is always the same, so far as her own fundamental laws give her identity. I claim for her perfection of design and unequalled skill in the display of her own efforts, when not contravened either by morbid influences, or the officiousness of man."

Among the determining causes for the use or the omission to use the forceps, the element of risk and danger to both life and limb of the mother and child, should weigh well with the operator. "Some appalling results occasionally ensue from the rude and unskillful attempts to extract the head by manipulation—such, for example, as detruncation of the fœtus, rupture of the uterus, dislocation or breaking the neck, serious lacerations of the soft parts of the mother involving the vagina, rectum or bladder. Many a tale of woe could be told, if the truth were spoken in reference to this point. There is no necessity for these sad consequences *once in ten thousand times*, and they occur merely because brute force is too often substituted for judgment and skill. These melancholy occurrences in the lying-in chamber, attract, unhappily, no special attention: surrounding friends are satisfied, because they have had rung into their ears, and they have the faith to believe it, that stereotyped phrase, "All was done that could be done!" But is there a corresponding benefit to the Public? Is that Public in any way requited for its measure of faith? I think not."*

There is one feature of Dr. Bedford's character, which it is always refreshing to recognize—his frank, candid, outspoken expression of opinion. After a very thorough elaboration of all points, pro and con, of the Cæsarian section, he enumerates his convictions in the following emphatic manner: "Therefore, in the fulness of my faith, I have no hesitation in saying, that if the child be alive, the woman at the completion of her pregnancy, and if it be made manifest that the maternal passages are so contracted as to render it physically impossible that a living child can be extracted per vias naturales, I should, between the two resources, (craniotomy and the Cæsarian section,) not hesitate to decide in favor of the latter."—Thus emphatic and pronounced is his opinion on this questio vexata, and it is due to Dr. Bedford to say, that he substantiates his opinions by a strong array of reasoning and example.

Dr. Bedford gives vent to a proper indignation at the "culpable indifference to Professional obligation." He declares: "Not long ago I was visited by a young medical gentleman, who had been in practice but a short time. In the course of conversation, the subject of operative midwifery was introduced. He remarked that he had enjoyed the best opportunities of becoming familiar with the use of instruments, for his preceptor had performed the operation of embryotomy, on an average, sixteen times a year! I protest against the unholy acts of men, intended neither by Heaven nor education, to assume the sacred duties of the parturient room."

It is pleasant to find Dr. Bedford throwing the whole moral value of his writings into the scale against the lax morality, on the subject of needless abortions. The world needs to be aroused to the heinousness of the sin of abortion, so often attempted and accomplished by women who ought to know they are guilty of the crime of infanticide! a degree of moral turpitude baser than homicide; it is the murder of the fruit of their own body, for life begins with conception.

In conclusion, it is a pleasing duty to reiterate that the faults of this great work are few, while its virtues are many. No obstetrical work in the English language can, with more safety, be accepted as a teacher and guide.

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* In a work of this kind, it would certainly have been more dignified, more satisfactory and instructive, for the author to have given multiplied facts and figures, with specific instructions, rather than to have indulged in this pointless Philippic against a large class of teachers and practitioners, equally competent and equally successful. That instruments are frequently used injudiciously, all are ready to admit, but that the limited statistics given by the author are to be accepted as conclusive, all are prepared to deny. The truth is intermediary; its exact nature, accumulated facts only can demonstrate.—Ed.

It is an invidious duty to indicate errors and to play the role of censor in regard to faults, but this is the mission in part of the Press, and it is in the accomplishment of this mission, that the Medical Press best subserves the true interests of the Profession and the welfare of humanity.

The chromolithographs embodied in the work are very bad, and the paper used by the Publishers, W. Wood & Co,, of New York, is certainly inexcusable. F. B. W.

PROSPECTUS OF THE MEDICAL COURSE OF INSTRUCTION IN THE HUMBOLDT MEDICAL COLLEGE, ST. LOUIS, MO. Winter Session. Commencing September 17, 1866.

The prospectus of this Institution, has just been received. After a careful examination of it, there is no hesitation in predicting a brilliant success for this College, if the promises made are faithfully fulfilled. After reviewing the gross abuses and deficiencies confessedly existing in the present system of American Medical Education, the Faculty have determined upon administering their Institution, according to a policy differing radically from that adopted elsewhere, in this country. This Faculty consists of ten, the following gentlemen representing the different chairs: Drs. S. Gœbel, Professor of Natural Philosophy;. A. Wadgymar, Chemistry and Botany; H. F. Leffingwell, General and Descriptive Anatomy; D. V. Dean, Physiology, Histology and Toxicology; G. M. B. Maughs, Materia Medica and Therapeutics; L. P. Vaughan, Theory and Practice of Medicine and Clinical Surgery; G. M. B. Maughs, Obstetrics and Diseases of Women and Children; Hon. James J. Lindley, Legal Medicine; A. Hammer, Pathological Anatomy; A. J. Steele, Demonstrator; Charles Heyer, Assistant Pathological Anatomy; P. J. Lingenfelder, Assistant Clinical Medicine.

There are two classes, Junior and Senior, and one Course of *seven* months, divided into two sessions of three and a half months, each Class having its special Course. For Junior Students, first Course, from September 17 to January 1st. Second Course from January 1st to April 15. For Senior Students, first and second Courses extend over periods exactly similar.

Special attention is given to Auscultation and Percussion, Toxicology, the use of the Microscope, diseases of the skin, Jurisprudence, Ophthalmology and aural Surgery. "Dissections throughout the Course; these are not left to the option of the Student, but must be pursued continuously, during the entire period of study." Fees for the entire Course $105.00; Demonstrator's ticket, $10.00; Graduation fee $20.00; Matriculation $5.00. Hospital tickets free. The usual thesis is required, at the period of final examination, and the applicant must, to acquire the diploma, have attended two entire course of lectures; the last being that delivered in this College. There are no requirements in regard to Matriculation, and nothing is said in regard to either daily examination or a final examination (subsequent to that of the Faculty) before a Board of impartial Physicians. The "Text Books" are by the best and most approved authors. The clinical and hospital advantages are represented to be of a very superior character.

In the phraseology of the prospectus, there is a careless intermingling of the first and third persons plural.

An initial step, in the proper direction, has at last been made. Those members of the Profession, who have the true interests of Science at heart, will watch the history of this praiseworthy effort, with earnestness, and with fervent hopes of a brilliant success. Each untrammelled Press will do all that is possible, not only to bring success, but to make it worthy of those who seek to do so much for Medical Science, so much for Medical Education, and for the true interests and safety of society.

MISCELLANEOUS.

Preamble and Resolutions.—Whereas, The New York Academy of Medicine has endeavoured to promote among its own members, and throughout the Medical Profession, a spirit of exact and practical inquiry into the preventive and remedial treatment of epidemic cholera; therefore, be it

Resolved, That this Academy hereby expresses its confidence in the utility of general and specific hygienic measures as the best means of protection against the pestilential prevalence of cholera in any locality where it makes its appearance; and that the most thorough scavenging, cleansing, and disinfection are absolutely necessary means of averting this pestilence in the cities and populous towns of our country at the present time.

Resolved, That in the judgment of the Academy, the Medical Profession throughout this country should, for all practical purposes, act and advise in accordance with the hypothesis (or the fact) that the cholera diarrhœa and "rice-water discharges" of cholera patients, are capable, in connection with well-known localizing conditions, of propagating the cholera poison; and that rigidly enforced preautions should be taken, in every case of cholera, to permanently disinfect or destroy those ejected fluids, by means of active chemical agents; also that with the same object in view, the strictest cleanliness of person and premises should be enforced upon all who have charge of the sick; also that all privies, water-closets, and cesspools should be kept thoroughly under the controul of disinfectants.

Resolved, That we regard the nature and causes of cholera infection, so far as the sick or their discharges can propagate it, as being so susceptible of controul, that there should be no fear or hesitancy in the personal care of the sick and all that pertains to them.

Resolved, That immediate and thorough cleansing and disinfection of all persons, clothing, and things that have been exposed to the discharges or persons of the sick with cholera, constitutes the the chief end and object of any rational quarantine or external sanitary police regulation against cholera.

Resolved, That, for the purposes here mentioned, an external sanitary police is desirable in all great maritime and river towns, but that such sanitary regulations need not seriously embarrass commercial intercourse and the interests of trade.

Resolved, That the main source of protection against epidemic cholera at the present time is to be found in the vigilant and effective operation of sanitary measures—municipal, domestic, and personal.

Resolved, That the New York Academy of Medicine cordially invites the physicians of every City and Village throughout our country to urge the immediate adoption of adequate measures of sanitary protection against the introduction and ravages of cholera, and that to this end we pledge our brethren and the public the hearty and continued coöperation of this Academy.

The above resolutions were unanimously adopted by the Academy.

THE BANEFUL EFFECTS OF NICOTINE PREVENTED.—M. Melsens has found that tobaccos, from various Countries, contain nicotine in very different proportion. In tobacco from some parts of France (e. g., the department of the Lot) there is 7.96 per cent. of nicotine; whilst Havana tobacco contains only two per cent. He proposes to smokers, a way of preserving them from the effects of the alkaloid, and advises them to put into the tube of the pipe or cigar-holder, a little ball of cotton, impregnated with citric and tannic acids. As the smoke passes through the cotton, it will deposit the nicotine therein, in the shape of tannate and citrate. M. Melsens has made very ingenious experiments, which go a very great way to prove that he is perfectly correct.—*Lancet.*

PHYSICIANS' ADVERTISEMENTS.—The frequent abuse of the mistaken leniency which allows a Physician publicly to announce or recommend himself, has become so frequent of late, as to call for some notice from, and for stringent action on the part of our State Medical Society. Until recently, the announcement of a change of residence, or of a resumption of practice, was the extent of what was considered justifiable by the laws of professional decorum, although even these exceptions have sometimes overstepped the limits of propriety, by being kept too long before the public eye, but now we find the newspapers every day containing permanent advertisements of members of our body, or advertisements which can in no way be distinguished from those of professional quacks. Not satisfied, moreover, with seeking notoriety by special and extra puffs in the columns of the daily Journals disgraceful exhibitions of machinery and written promises to cure are conspicuously presented to the gaze of the passer-by in office windows, pamphlets containing accounts of wonderfully successful cases are published for public distribution, and self-laudatory circulars are issued for the medical reader.

There is another class of advertisements which is also becoming more frequent, and which, although hitherto considered at least not improper by some of the Profession, is so liable to abuse in its present undefined condition, that it has become a matter worthy of grave consideration. We mean the cards of so-called specialists published in a Medical Journal. It is a custom which has so gradually sprung up in this City, as to have become an almost recognized law amongst us, and we do not in the least intend to reflect upon the gentlemen who have availed themselves of its privileges. It is a custom, however, which is confined to ourselves, and which would be considered entirely unprofessional in any other part of the country."

[*Boston Medical and Surgical Journal.*

[This unquestionable breach of ethics is conspicuously becoming more frequent. It is much to be regretted, and will, it is hoped, be generally condemned.—Ed.]

Chloride of Sodium in the Treatment of Wounds.—This is one of the most important discoveries of the present day for inducing the speedy cicatrization of suppurating wounds and for obviating the dangers that sometimes result. A great many agents have been employed for this purpose, as coal-tar, phenic acid, camphorated alcohol, chlorate of potassa, and other compounds of chlorine and latterly the sulphites. Amongst these different agents, none are more useful as disinfectants than the compounds of chlorine: but strange to say, the chloride of sodium, which is the most common, and is always at hand, is rarely used by the Profession. It is not, however, that experience has failed to testify to its worth; for many very able and interesting articles have been written on its use in the treatment of wounds, and submitted to the Profession. Latterly Dr. V. Dervandre has published an article on the value of the chloride of sodium in the treatment of wounds, the more valuable, adds this author, because it can be always procured. The first effect of the chloride of sodium on a wound which is fetid, is to induce the immediate disappearance of the bad odour. Another immediate phenomenon observed is the pinkish hue which it gives the decomposed sanguineous blackish liquid which covers the wound. At the same time, there is experienced a sensation of cold and of pricking in the wound which may even become slightly painful.—The suppuration diminishes rapidly in quantity, and if sanious, it becomes healthy in a few days. The wound granulates and cicatrizes rapidly. The change evidenced in wounds by the chloride of sodium has a happy effect on the system. The appetite improves, and the patients acquire strength. In support of the value of a solution of this salt, Dr. Dervandre reports 400 cases of wounds thus treated. In one case only was there pyæmia. There was neither erysipelas, nor tetanus, nor hospital gangrene present in any of his cases, though the hygienic condition of the hospital under his care was bad. The solutions used by Dr. Dervandre are not of the same strength. At first he uses a solution of about two drachms to two pints of water. In a few days afterwards he resorts to concentrated solution. These solutions are injected in fistulous tracts or on the surface according to the nature of the wounds.—*Union Medicale.*

EXTRACTS FROM A REPORT OF A COMMITTEE ON THE TRICHINÆ AT CHICAGO.—We have found trichinæ in the muscles of 28 hogs out of the 1,394 examined. We may therefore conclude, that in the hogs brought to Chicago one in fifty is affected with trichiniosis, in a greater or less degree. We must confess our surpise at arriving at this result, which indicates, with little doubt, the startling fact that trichiniosis in pork is even more common in this country than in Germany, where it has caused so much suffering and death.

For instance, in the city of Brunswick, where a most careful inspection of 19,747 hogs was made in the years 1864–5, only two were found to contain trichinæ in their muscles, the proportion being 1-10,000 against 1-50, as before stated in our country.

The panic which now prevails is unfounded in reason, senseless, and greatly injurious. We do not allude to the commercial aspects of the question, a matter of small moment, compared with the great importance of pork as the kind of meat diet upon which nine-tenths of our agricultural population, North and South, mainly depend.—In our view it would be folly to discard this kind of meat from our list of articles of food, when all possibility of injury attending its use may be avoided by the most simple means. Let the people but understand that only one hog in forty-eight contains trichinæ at all, that only one in three hundred contains them in sufficient numbers to cause considerable danger, and that even in these cases the worms are rendered innocuous by proper smoking, drying, or cooking—and we imagine that few sensible persons will refuse pork as food if it suits their convenience to use it.—*Chicago Medical Examiner.*

OIL OF ERGOT IN ODONTALGIA AND HÆMORRHAGE.—Dr. Wright (as quoted by Dunglison's New Remedies, *Journal of Materia Medica,*) states that the oil of ergot is one of the most valuable remedies with which he is acquainted in toothache, and has frequently known it subdue the pain when creosote had failed. Mr. Wright found the oil of ergot an efficient hæmostatic in bleeding from gums and from leech-bites; and both Arnal and Bonjean used ergotine successfully in every form of spontaneous hæmorrhage.

The following prescription can be relied on as most efficient in serous and uncomplicated diarrhœa. It is delightful to the taste, agrees well with the stomach, is perfectly harmless, and may be taken ad libitum. It is an anti-spasmodic of great power in all nervous and spasmodic diseases:

℞.—Tinc. Catechu	ʒ jjj ss.
Spts. Chloroformi	ʒ j.
Fl. Ex. Conii	ʒ j.
Fl. Ex. Sennæ Alex.	ʒ jj.
Aquæ Menthæ Piperitæ	℥ vi.

Misce. Dose: One teaspoonful, in a little water, two or three times a day.—*Exchange.*

IMPROVED METHOD OF PRODUCING INTENSE HEAT.—M. Schlœsing has succeeded in discovering an arrangement by which an intense heat, sufficient to melt iron, can be got from ordinary gas. The principle of his contrivance is the complete combustion of the proportionate amounts of gas and air within a confined space, and the continuous supply of the combustible materials. A copper tube, carefully pierced, is the chief instrument in securing those results. M. Schlœsing was able to melt a piece of iron, weighing 400 gms., in twenty minutes by his plan.—*Scientific American.*

TO EXTRACT SILVER PLATING.—An important problem is that of readily obtaining pure silver from old, worn out plated utensils of copper, etc. The best method consists in treating the plated work with sulphuric acid in which from five to ten per cent. of nitrate of soda has been dissolved. The silver disappears as if by magic in this solution, before any of the copper is at all acted upon.—*Jour. of Applied Chemistry.*

A METAL THAT EXPANDS IN COOLING.—Lead, 9; antimony, 2; bismuth, 1 part. This metal is very useful in filling small defects in iron castings, etc.—*American Artisan.*

PREPARATION OF COPAIVA WITHOUT SMELL OR TASTE.—Dr. Beyran recommends the following tasteless and inodorous preparation of copaiva: Take of copaiva and tar, of each ℥j.; magnesia, a sufficient quantity, according to the degree of consistency required.

"ETHEREAL COPULATION" AND "MECHANICAL IMPREGNATION."—Such are the titles of two little works just issued from the London Medical Press, which we find noticed in the May number of the *Cincinnati Journal of Medicine*, coming not from a Frenchman, nor yet an Englishman, but an American, (Dr. J. Marion Sims,) who after practicing here, South and North, has chosen both London and Paris, for his field of operations. Our self-exiled countryman has made valuable contributions to surgery and obstetrics, but, we apprehend, has now gone beyond the bounds of propriety.

"In one case, it became the *business* of the Physician to repair regularly to the residence of this couple, two or three times a week, to etherize the poor wife, * * * hoping that she would become pregnant, and that delivery would cure her. This etherization was continued for a year, when conception occurred."

In the other work, "Mechanical Impregnation," our distinguished citizen and confrére came very near making an English lady bring forth, for, says the Doctor, a syringe, duly charged, had been used for the purposes of impregnation, but the lady aborted.—*Nashville Journal of Medicine and Surgery.*

MEDICAL NEWS.

The Queen has been pleased to direct letters patent to be passed, under the great seal, granting the dignity of a Baronet of the United Kingdom of Great Britain and Ireland, unto Thomas Watson, of Henrietta Street, Cavendish Square, in the Parish of Marylebone and County of Middlesex, Doctor of Medicine, President of the Royal College of Physicians, and one of Her Majesty's Physicians Extraordinary, and the heirs male, of his body, lawfully begotten.
[*London Gazette, June* 19.

"According to the published proceedings of the Medical Association of the State of Georgia, the first prize of that body has just been awarded to Dr. E. S. Gaillard, of Richmond, Va., for his Essay on Diphtheria."

[This Essay will be published, in the Richmond Medical Journal, commencing with the September number.]

A VALUABLE WORK ON MEDICAL STATISTICS FORTHCOMING.—On the 9th instant, a resolution passed both the National Senate and House of Representatives, directing the Secretary of War to communicate a report of the Medical Statistics, collected during the war, in the Bureau of the Provost-Marshal General, by Surgeon J. H. Baxter, as soon as such report can be compiled and prepared for presentation by him.

CIRCULAR NO. 6.—Surgeon-General Barnes has published, in circular form, for distribution, extracts from letters received by him from the leading Surgeons in the world, bestowing the highest possible encomiums on his circular No. 6, and expressing the hope that this government will provide for the publication of a volume, embodying the experience of the medical staff during the war.

Dr. FREEMAN J. BUMSTEAD has been appointed Professor of Materia Medica and Clinical Medicine, to fill the vacancy caused by the death of Professor Jos. M. Smith, in the College of Physicians and Surgeons, New York.

THERE is such a dearth of Physicians and Surgeons in the Austrian navy, that the government offers to engage young men who have not yet completed their medical studies.

PROFESSOR W. BYRD POWELL, an eminent American Physician and phrenologist, lately dead, bequeathed his head to one of his pupils, a Mrs. Kinsey. The executor of the deceased employed Dr. Curtis, of Cincinnati, to take off the head, and it is now in the possession of the fortunate legatee.—*Dublin Medical Press and Circular.*

EDITORIAL.

The Romans regarded the language of all other Nations as barbarous and inadmissible; Americans regard thus, only their own. No one can contrast the literature of these Nations, without being impressed with the singular fact, that while the first selected its own tongue, as the appropriate record of all that stimulates pride and perpetuates glory, the last seems averse to having conveyed, in its own language, the attractive lesson of its sudden greatness and wonderful history. One reads, in the pure language of her Country, the chaste record of deeds that made Rome "The Eternal City," but the brief life of America is already injured and retarded by the bad taste of those in charge of her literary development.—Exceptions there are to the uniform truth of this assertion; monkish historians have, at times, forgotten the dignity of the pen, and the author of the Alhambra has shown, that English classics may be written in America; but the testimony of the Student will still establish the law.

America claims to have perpetuated and developed the language she has adopted: but England, though she has, in much, retrograded from the high standard of her illustrious literature, is yet justly able to condemn those who have so poorly appropriated her tongue. If this be true in general literature, how much more true is it in the literature of Medicine—contrast the style of those earlier American Medical writers, who were educated abroad, with that of the many since educated at home, and how apparent is it, that the American has just cause for mortification, surprise and regret. Contrast the phraseology of American Medical writers now living, with that of their English contemporaries, and every candid mind must confess, that shame, if no better impulse, should demand improvement and reform.

While one reads the classic language of Watson and Fergusson, with ease and admiration, he is fatigued and distressed in the vain attempt to extricate a meaning from the pages of many American authors, whose names kindness refuses to mention. One almost fails to realize that such works are ostensibly published in the language of Shakspeare and Milton and Dryden. The cherished and familiar words of Saxon roots, are banished by Greek and Norman usurpers, and the welcome monosyllables that give ease and perspicuity to the English language, are replaced by the polysyllabic and polysynthetic creations of the American and Latin tongues. There are many well known gentlemen, who appear to think it impossible to convey their conceptions, but in words of gigantic proportions, and amusingly suppose that the value of their thoughts will be estimated, in a direct ratio with the length of their words. Such writers imagine, apparently, that themselves and their thoughts are to be elevated to a colossal importance, by the adoption of a sesquipedalian system of phraseology. These literary Josephs essay to lift the sword of Richelieu, forgetting that the fashion of the weapon is past, and with it the giant, whose strength once made it terrible. Ordinary men, with such words, bear to Johnston the same relation as ordinary men, with Richelieu's sword, bore to himself; demonstrating that while giants, mental and physical, may appropriately and grandly handle weapons, which with them are natural, and overwhelming, those cast in weaker moulds may unwisely appropriate such weapons, but they cannot wield or wear them.

The style of Johnston, once made endurable by himself, is now as much out of place, even if well imitated, as would be the sword of Richelieu.

These general statements, however, in regard to the style so unfortunately manifest in the greater portion of American contemporaneous literature, will be rendered more suggestive and apposite, by two, of many hundred examples that could be given. Examples are selected, showing from an ancient, and then from a modern author, the effects produced by agents that are each disturbers of normal respiration.

"The exercise of respiration, and the organs of it, have so constant and considerable a connection with almost the whole of the other functions and parts of the human body, that upon almost every occasion of disease, respiration must be affected. Accordingly some difficulty and disorder of this function are in fact symptoms, very generally, accompanying disease."

This sentence, taken at random, is so plain and so English in character, that a child can understand it, yet it is a part of a master's description of an elaborate and difficult subject.

Here is the description, by a modern medical writer, of the effect of a familiar anæsthetic: "The chemico-organic and bio-dynamic influence of nitrous oxide is hence so much the greater from the presence of its constituents in an actively divided state, the nascent condition affording the most favorable opportunity for chemical reäction, molecular nutrition, organic metamorphosis, dynamic manifestation and vital development." What is to be made of such a sentence? What does it mean? It must have been after reading similar hybrid phraseology that the witty Bishop of Autun originated his classic satire: "The object of words is to make thoughts unintelligible."

It must be admitted that the examples selected are intended to contrast very strongly the different schools of writers mentioned, but all must confess, that language very similar to that used in the last example, is painfully familiar to those conversant with the contemporaneous Medical literature of America; a literature so turgid, as to be ludicrous; so filled with pedantry, as to become mortifying and pitiable, and so loaded with the absurd fantasies of philology, that even to the best classical scholar, the greater portion of it is apocryphal and the rest inexcusable and ridiculous.

What is the cause of this radical difference in the style of English and American works of the present time? First, the superficial character of Education, literary and Professional, in our country, and second, the entire absence of a safe or reliable Review of the thousand works, emanating from the American Press. Such Reviews are couched, almost invariably, either in disreputable syntax, showing the entire inefficiency of the Reviewer, or they are confined to statements so general in character, as to destroy all confidence, and subvert, in part, a better taste on the part of the youthful reader. Few works are read, and still fewer analyzed, when read. The result is, that true scholars deride the Reviews of them, and the young have their better tastes first offended and then corrupted by them. The good and the bad, the masterly and the worthless productions are all equally eulogized and recommended. Writers manifesting the crudest taste in phraseology, and those who are at least intelligible, receive the same notice and similar criticism. The young graduate and the young author purchase works, after reading elaborate eulogies of them, and sacrifice their better instincts and better sense, in deference to those whom (until better informed) they imagine to be accomplished critics and reliable guides. Coming themselves before the reading world, they out-Herod Herod, and have these enormities and vices in style perpetuated by the indiscriminate eulogy of a superficial Press.

With inefficient literary and Medical educations, and with worthless Reviews, is American Medical Philology hopelessly committed to a future as offensive to good taste and common sense, as is its present ? This is a serious question, affecting the literary taste, progress and elevation of the American Physician. The answer is, after the best advantages that the best Medical Colleges can afford, let each Physician form his standard of style, his appreciation of what is pure and commendable in Medical Philology, by familiarity with those masters who have successfully passed the ordeal of Enropean criticism.

America is wonderful in many respects, but she is a child, as yet, in the world of general and Professional literature. Let American Physicians then thus originate in themselves a literary taste and style, obtained from the best sources and highest standards, and thus obtaining this great boon, let them visit with unsparing condemnation those Professional clowns, who come upon the stage, either of the lecture room or the library, with their cap and bells—those literary Harlequins also, who, with their absurd fantasies in Medical Philology, serve to derogate from the dignity of Medicine and to make Medical literature a mockery and disgrace.

There is not the least assumption, on the part of this Journal, of a better or more reliable Review of the Medical works published. The comparison of English and American publications received, has been painful and mortifying, and in obedience to the conviction that one of the highest and best offices of Journalists is to indicate error and the means of its rectification, this article has been hastily prepared and presented.

This Journal has sought to identify itself with every effort made, for the advancement and improvement of American Medical Education; it is equally anxious to contribute, as far as is possible, towards the elevation and development of American Medical Literature.

MEDICAL COLLEGE OF VIRGINIA.—In a brief notice of the last announcement of the next course of lectures to be delivered at this Institution, it was stated, in the July number of this Journal, that the "Summer Course" should be unsparingly condemned. Since the publication of the article mentioned, the Dean of the Faculty has indicated, that by the use of the adjective "annual," rather than semi-annual, in the first line of the announcement, it was his intention to convey the impression, that the semi-annual course of lectures had been by the Faculty definitely abandoned. As this gentleman was well known to be opposed to a Summer Course of lectures, it was from an exaggerated, but fully appreciated, sense of generosity, that he was led to state so delicately (yet ambiguously) this sudden and radical change in the recent policy of this Institution. Few would have acted thus generously, and while such a course is highly creditable to himself, it is to be feared, that the resulting obscurity may, without an explanation, prove injurious to the welfare of the Institution. It should be then definitely and distinctly known, that after the experience of the present Summer, the Faculty have deemed it most advisable to abandon the second or Summer Course of lectures. While the unsatisfactory character of the published requirements in regard to matriculation, dissection and graduation is not peculiar to this School, it, in common with many others, is justly to be held responsible, by the Profession, for not adopting a higher, more efficient and praiseworthy standard in this connection.

During the past month the New Orleans Medical and Surgical Journal, edited by Drs. S. E Chaillé and W. C. Nichols, and the Nashville Journal of Medicine and Surgery, edited by Drs. W K. Bowling and Paul F. Eve, have been received. The publication of these old Journals was suspended during the war and is again resumed. The Editors and their works are so well known, that no Journal-reader requires an introduction to them; they have the best wishes of the Editors of the Richmond Medical Journal for their success.

Erratum.—For "per tanto," on page 71, July number, read "pro tanto."

NOTICES.

☞ This Journal is published as a Monthly octavo of eighty pages.

A respectable number of the best writers in this country have promised their support, (an ostentatious display of names is avoided,) and as the Editors offer to pay, at the HIGHEST JOURNAL RATES, for ARTICLES, ESSAYS, CORRESPONDENCE and REVIEWS OF RECENT WORKS, it is hoped that the original department of the JOURNAL will be entitled to respect and confidence.

The pages of the JOURNAL are devoted to Original Articles, a Retrospect of Medicine and Surgery during the late war, an Eclectic Department, (which is a chief feature of the JOURNAL,) Reports of Societies, Associations, Hospitals and Clinical Lectures, Foreign and Domestic Correspondence, Reviews and Bibliographical Notices, Medical News, Editorials, Miscellaneous Matter, etc.

Without making special promises, the Editors will endeavour to make this Journal acceptable to its supporters.

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☞ Many subscribers have remitted the amount due for the postage of this Journal. In all cases, this sum has been returned. The postage is to be paid at the office of delivery.

☞ HAVING extensively distributed vaccine virus during the past several months, I will feel greatly obliged to my Medical brethren if they will report to me either failures or abnormal phenomena from its use. The virus being all from one stock, these observations will possess an unusual amount of interest and value. Please address JAS. BOLTON, M. D., Box 505, Richmond, Va.

☞ ACCORDING TO THE PUBLISHED TERMS of this Journal, all subscriptions will be doubled, if unpaid three months after the date of the original subscription order. Subscribers, know, each, the date of the order given, and will govern themselves accordingly. It is hoped that the Publishers will not be compelled to enforce these terms, in regard to any one.

☞ I respectfully invite all medical men generally to contribute any information in their possession to me, preparatory to the publication of another edition of the "Resources of the Southern Fields and Forests."
F. PEYRE PORCHER, M. D.,
Charleston, S. C.

☞ ADOPTING THE POLICY of the London Lancet, and other European periodicals, the Advertisements in this JOURNAL, will constitute both a prefix and appendix to the Work.

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All communications sent by mail should be directed to Dr. E. S. Gaillard, Locked-Box 32, Richmond, Va. Those to be delivered personally, should be left at his office, 404 Franklin Street, between Fourth and Fifth Streets.

European packages, sent through Trubner & Co., 60 Paternoster Row, London, or J. B. Bailliere et Fils, Rue Hauterfeuille, Paris, will be safely forwarded.

It is expected that all expenses will be paid on packages, foreign and domestic, sent to this Journal.

All contributions or papers, intended for insertion in the next Number of the Journal, should be received by the middle of the month preceding.

Contributions for publication must bear the signature of the writer, and must be communicated to this Journal exclusively.

Original articles should be written on one side only of each sheet, and the manuscript should be, by the sign (¶), divided into paragraphs.

Contributors can have forwarded to them, at a small expense, one hundred or more copies of their articles, in pamphlet form, provided the order to this effect be received before the period of publication.

The Journal will be sent a second time, when not received one month after the usual period of its appearance.

Rejected manuscript will be returned, if desired, by mail or Express, at the expense of the writer.

Each subscriber will give at length his name, State, County and Post Office.

MATRIMONIAL.

Married, on Thursday, June 7th, 1866, at the residence of the bride's father, by the Rev. P. F. Berkeley, Dr. C. Wesley Thomas, late of C. S. Navy, of Richmond, Virginia, to Mattie Creed, daughter of Robert Haskins, Esq., of Powhatan Co., Va.

Married, in Wabashaw, Minn., May 1st, by Rev. H. G. Patterson, of Grace Episcopal Church, Dr. James H. Milligan, of Wabashaw, Minn., and Miss Sallie D. Abrahams, of Steubenville, Ohio.

MORTUARY.

On the 18th of June, at "Wood Grove," Hanover County, Va., of dysentery, Annie Winston, daughter of Dr. J. C. and S. Barton Gregory, aged eighteen months and six days.

Dr. William A. Carrington, at Charlotte, Va., on Tuesday, July 17th, ult., aged thirty-seven years.

Dr. Erasmus Darwin Fenner, in New Orleans, Louisiana, May 4th, 1866.

BOOKS, JOURNALS, Etc., RECEIVED.

Da Costa's Medical Diagnosis, with special reference to Practical Medicine. By J. M. Da Costa, M. D. From the Publishers, J. P. Lippincott & Co., Philadelphia.

Hammond on Wakefulness. By W. A. Hammond, M. D. From the Publishers, J. B. Lippincott & Co.

The Annals of Tennessee. By J. G. M. Ramsey, A. M., M. D. From the Author.

Anales De La Real Academia de Ciencas Medicas. Fisicas Y. Naturales, De la Habana, Revista Cientifica. From the Academy.

The following Exchanges are regularly received: The Atlanta Medical and Surgical Journal; Boston Medical and Surgical Journal; Braithwaite's Retrospect; Buffalo Medical and Surgical Journal; Chicago Medical Journal; Chicago Medical Examiner; Cincinnati Lancet and Observer; Cincinnati Journal of Medicine; Cincinnati Medical and Surgical News; Canada Medical Journal, Druggist's Circular and Chemical Gazette; Galveston Medical Journal; Journal of Applied Chemistry; London Lancet—Original and Reprint; Medical Record; Nashville Journal of Medicine and Surgery; New Orleans Medical Journal; New Orleans Medical Record; New York Medical Journal; Pacific Medical and Surgical Journal; St. Louis Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; Southern Journal of the Medical Sciences; Southern Medical and Surgical Journal; The American Journal of Pharmacy; The American Journal of the Medical Sciences; Dental Cosmos; The Detroit Review; Philadelphia Reporter; Medical and Surgical Monthly; The St. Louis Medical Reporter; Le Mouvement Medical, Paris; Journal de Medecine Mentale, Paris; Medical Press and Circular, Dublin; Revue de Therapeutique Medico Chirurgicale, Paris; Revue Medicale, Paris; Littell's Living Age; The Farmer; London Punch.

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ORIGINAL COMMUNICATIONS.

Art. I.—Remarkable Case of Gun-Shot Wound of the Bladder, Requiring two Operations of Lithotomy, one Seven and the other Eleven Months after Receipt of Injury, and an Operation for Fistula in Peineo, six Months Later—Recovery Perfect. Reported by Carlisle Terry, M. D., of Columbus, Ga.

J. A. M., Co. E., 39th Alabama Regiment, was wounded on the 28th of July, 1864, in battle near Atlanta, by a minie ball passing through the sacrum near its left iliac junction, then traversing the pelvis, it passed through the walls of the bladder, and made its exit through the pubis to the right of the symphysis. He was admitted into Hospital in Atlanta, and remained there fifteen days.—While there the anterior wound healed. About that time an abscess formed above the anterior wound, near the anterio-inferior spinous process. He was admitted into Walker Hospital, Columbus, Ga., under my charge, on the 5th of September, 1864.

The urine was then passing partly from the posterior wound.—Soon after, several abscesses formed near the wound of exit, close to the right side of the scrotum, involving the right testicle, most of which sloughed out, probably on account of injury to spermatic vessels. The posterior wound did not heal, until three months after the receipt of injury. About that time, the abscesses around the root of scrotum also healed, yet the fistula near the anterio-inferior process remained open, through which was discharged a portion of the urine; also several small pieces of bone. Small pieces of bone and several urinary calculi also passed through the urethra during this time.

The suffering experienced during micturition, and the pain in pelvis, induced me to explore the urinary canal with a sound. On passing the instrument into the membranous portion of the urethra, a grating sensation was felt. The diagnosis having been made now certain by subsequent examinations, an operation was determined upon for the removal of the foreign body.

On the 3d of March, 1865, the patient was placed on the table, and a straight staff passed into the urethra down to the foreign body. It had been impossible to pass a sound or catheter into the bladder, or to any distance below this. The cause was disclosed as the operation proceeded. Upon opening the urethra, a piece of bone one and one-half inch long, was found lying transversely across the urethra and imbedded in the muscles. This was found to be covered with calcareous matter, and was, after a little manipulation, removed with the forceps. Further examination then disclosed a number of pieces of bone and a large amount of calcareous matter in the membranous portion of the urethra, which was found to be much elongated and attached to the pelvis, making a short angle around it, thus explaining why no instrument could be passed into the bladder. The urethra from this point was found to be much enlarged, elongated and attached to the inner face of the pubis, the prostate being at the upper end of the symphysis. The finger being used as a director, the remainder of the urethra was carefully opened with a bistoury; many pieces of bone and a good deal of calcareous matter removed. Upon reaching the prostate, the point of the finger could be nearly passed into the bladder. The gland was sufficiently incised with the bistoury, and the finger passed into the bladder, in which several more pieces of bone were found and more calcareous matter. One piece about the size of a filbert was found enclosed in a cyst, which, however, was thin enough to be opened with the finger nail. The bladder was then well washed out with copious injections of warm water. So much of the bone was in very small pieces, and the calcareous matter being so soft, a large portion of it was lost, having become mixed with the clots and washed away in sponging. It was thought that about as much as would fill the palm of the hand was removed.

The patient suffered with considerable fever for the next three days, which subsiding, he continued to improve, though much irritated by the passage through the wound of small pieces of bone and sand-like deposits.

On the eighth day after the operation, he had high fever, with severe headache, which continued three days, during which time the urine commenced to flow through the fistula, near the right anterior spinous process, in consequence of which the catheter was introduced into the bladder, through the wound. About the same time he suffered from inflammatory engorgement of the scrotum.

The patient continued to improve for about one month. The incision healed and urine passed almost entirely through the urethra, except that occasionally the fistula would discharge a little of it.—About this time calcareous matter began to be discharged, and increased irritation of the bladder gave evidence that more bone was making its way into it, and small spiculæ were discharged by the urethra. It was judged best to sustain the patient as well as possible, and wait in hopes that after all of the necrosed bone should have been thrown off, another operation might result in a final cure.

In April, the Hospital having been broken up by the termination of the war, M. was removed to his father's, some twenty miles from the City. He continued to discharge a great deal of calcareous matter, and became so reduced by pain and irritaton, that it was evident that he could hold out but little longer. On the 29th of June, I went down to see him, I found him very much emaciated and suffering all the time great pain and constant fever, I determined to operate at once, (though I had no Medical assistance,) aided by his father and two neighbours.

The abrupt turn of the urethra around the pubis, and its attachment to the inner face of that bone, rendered the introduction of a sound to the bladder impossible. A staff was passed in as far as possible, and the usual lateral incision made to it, then a director readily passed from the wound through the remainder of the urethra to the bladder, and the stone was distinctly felt. With a probe-pointed bistoury the urethra was split up and the prostate incised. With the forceps several small pieces of bone and three calculi were extracted, the larger of which was about the size of a guinea s egg; the others the size of a hickory-nut. As at the first operation, there was a large amount of soft calcareous matter discharged with the urine, when the prostate was incised. After thoroughly washing out the bladder, an examination with the finger showed that the organ, so far as could be thus ascertained, was in a healthy condition, (which it was not after the first operation,) and gave reason to hope that the relief would be permanent.

The patient bore the operation well, and passed a comfortable night. I left the next morning, leaving a note requesting my friend, Dr. Geo. Heard, who lived five miles distant, to look after the patient, which he kindly did.

M. recovered rapidly, and with no bad symptoms. The fistula in the groin now quickly healed, but unfortunately the incision failed to heal, and except when closed by the finger, nearly all of the urine passed through it. Dr. Heard made several attempts to close it by cauterizing, but as he could not pass a catheter into the bladder through the penis, they were all unsuccessful.

In December, I had M. brought to town. He was then in health, and had passed no calcareous matter since the operation in June, but a large fistula remained in the perineum, through which all the urine escaped.

I first made an attempt to use a gum elastic catheter, which I could introduce readily into the bladder, by passing it through the penis to the fistula, and then with a strong director bending it, and guiding it into the bladder. I soon found that this would not answer, as in consequence of the abrupt bend in it, it soon became softened by the urine, and losing its elasticity, would become impervious, and the urine would discharge around it through the fistula as before. I then had a silver catheter prepared by bending it very short, and by careful manipulation I succeeded in introducing it into the bladder. Then by scarifying, cauterizing and stuffing the fistula with charpie, I obtained granulation from the bottom, and in six weeks the fistula was entirely closed and the catheter removed.

After nearly eighteen months confinement to his bed, M. began to walk about and rapidly regained his health.

Upon resuming the erect position, however, he found that he could retain no urine, but that it ran guttatim as rapidly as secreted. Very gradually, but steadily, he regained power to retain it, until at this time, April 26, 1866, he can retain it to the amount of four ounces, when, unless voided, it will commence to drop. As his improvement in this respect has been so steady, it is to be presumed that in time he will be able to retain the usual quantity.

My friend, Mr. W. J. Land, an accomplished chemist of this City, has kindly made an analysis of the calculi, and finds them to consist almost entirely of phosphate of lime, with very slight traces of oxalate of lime, developed upon several small pieces of bone.

The operation on the 29th of June was contrary to the established rule—"Always feel the stone before you operate,"—but the impossibility of reaching the bladder, the history of the case, and the certain speedy death of the patient unless relieved, justified me in it, and the result proved the correctness of my diagnosis. I doubt if the operation for stone was ever before performed, without medical assistants. Mine in this case were plain country farmers.

This case, in both operations, showed the advantages of a Surgeon's accustoming himself to operate without gorgets, lithotomes, &c. In this case the bistoury (the instrument I always use) was the only one which could have been used successfully.

The difficulty in getting a silver catheter in, to cure the fistula, can be but poorly shown in the report. The curve was made very short, making nearly one-third of a circle, and which almost any one would say would be impossible to have been introduced. It formed an angle of but little more than 45°.

Art. II.—Exsection of Four-Fifths of the Radius and a Portion of the Ulna—Recovery. By W. M. Fuqua, M. D., Appomattox, Va.

Private B., of a Louisiana Regiment, was admitted in the General Hospital at Danville, Va., on the 12th of January, 1863, having been transferred from Staunton. He was wounded at the battle of Sharpsburg, which occurred on 17th September, 1862, the ball fracturing the ulna about an inch from its inferior articular extremity, traversing the arm obliquely, and passing directly through the radius, three inches from its lower extremity.

On an examination of this patient, I found the arm (his right) twice its natural size; he was unable to use either his hand or arm; the movements of pronation and supination were in abeyance; there were three fistulous orifices along the upper border of the radius, equally distant from one another, the first being at the original site of fracture. Through each of these openings dead bone could be detected. It was further determined, that a cast of bone had been formed around the original radius, encasing it completely, so that the old bone could only be touched by the sinuses, and to this fact its abnormal size was due. A false joint was also discovered an inch from the lower extremity of the ulna, indicating the point of entrance of the ball. Here there had been no new formation of bone.

It was proposed to the patient to remove the radius, in part or the whole, depending upon the extent of the disease. To this he readily consented.

Sometime in the month following, an incision was made, beginning at a point on the outer and upper part of the forearm opposite the tubercle of the radius, and carried in a direct line along the border of that bone to the radio-carpal articulation. The tissues were now carefully detached from the body of the bone, which was disarticulated at the wrist. Its interosseous border was now freed, until near the tubercle, when it was sawn off. The upper fragment was found healthy.

On examining the false joint formed at the lower extremity of the ulna, it was found in a carious condition. This was removed with the plyers, and its articular facet loosed from its capsular ligament with the scalpel. No vessel required a ligature. Venous hæmorrhage considerable, which soon ceased.

This long incision was now carefully united with sutures, supported with a light bandage, and the arm placed upon a well padded splint, extending from the elbow to the tip of the fingers. The simplest dressing was used.

Nothing occurred in the progress of the case to dampen our expectations of a happy recovery, until about the twelfth day after the operation, when he lost his appetite, and became feverish; arm much swollen, and unnaturally red, especially along the course of the brachial artery, when on the next day we found an abscess forming; this pointed rapidly; was freely incised, and after a few days began steadily to improve. His recovery was now very rapid in every respect. The incision united along its entire length. He began both to pronate and supinate the limb. His hand became more and more useful. The limb was somewhat shortened. About the first of the May following, he became an attendant in the hospital, using his right hand freely, without pain or inconvenience.

I am indebted to Dr. John Ward for his assistance during the operation. Drs. Granville Lewis, Glocker and Zacharias were present. The former was in constant attendance upon the patient, during his recovery.

Art. III.—Diphtheria—Its History, Pathology, Nature, and Treatment. An Essay which received the first Prize of the Medical Association of the State of Georgia, June, 1866. By E. S. Gaillard, M. D., Richmond, Va.

We have, in this Essay, made it our chief object to elucidate and establish the pathology of the disease which forms its subject, whilst, at the same time, there has been given careful attention to all else of interest and importance connected with it.

With the treatment and general history of diphtheria, very many of the Profession are of course familiar, but any one, who has bestowed even a cursory attention upon its literature, can not have failed to perceive the obscure, injurious, and even antagonistic views, that have been offered and received, in regard to its pathology.

It is in consequence of this confusion and contradiction, that the disease is still regarded as "lis sub judice," and therefore a most appropriate subject for analysis and examination.

In preparing this essay, we have sought to give it a practical character, by corresponding with the most distinguished gentlemen, in this branch of the profession, both in America and Europe; and from more than one hundred autograph letters, we have selected much of the original and important testimony, that is now offered for consideration.

The literature of the subject, as represented by published works, monographs, essays and reports, has been carefully studied, and if, as a result, the views now presented, are not correct and just, it has not, at least, been for a want of material, or opportunity.

Whether these have been logically, or even judiciously used, it must of course be for others to determine.

We are fully aware of the extended field that has been entered and painfully sensible of the feeble power which has been brought to its cultivation; yet we have patiently tilled it, hoping that the harvest, such as it is, might, with its defective and unripened material, be received into the Professional garner.

No disease has, in recent years, attracted more of the notice of the Profession; its supposed novelty and obscure etiology; its insidious advent and treacherous departure; its peculiar history and unusual results have aroused the attention that induces study, and inspired an interest which promises better comprehension. Physicians, both in Europe and America, have examined, reflected, written, and the Press, in its mission, has widely disseminated the fruits of their labours.

We have received, and are daily receiving, the great essentials for scientific progress—the indispensable requisites for investigation, in all branches of pathology—testimony and fact. Theory and hypothesis seem to have become a part of the Past; demonstration and proof only receive the cautious seal of the Present. A growing skepticism has at last made fa t the touchstone, in all that is offered for currency. The genuine material stands the ordeal and receives the stamp of validity; whilst the spurious is at once detected and rejected, as counterfeit.

Hypothesis and theory should then, as far as practicable, be abandoned, and testimony and fact be made the basis of every investigation. With such views and purposes, we undertake the analysis and consideration of our subject.

History.—We will first examine the history of diphtheria, to show that it is not, as has been so often declared, a disease of modern times; and then give (as well as the limited character of such a paper will admit) a concise account of its prevalence, to any extent, in Europe and America. In this, we will, of course, be unable to present more than a passing allusion, and then only to those sections, (not localities) where the disease has prevailed to any extended or malignant degree.

Although, according to Brettonneau, from whom all writers must quote, this disease was known in the earliest periods of Grecian history, when the blind son of Mæon chaunted his immortal verse in the streets of Smyrna and along the bridle-paths of Ionia, yet we cannot take the obscure allusions of Homer, whose very existence has been doubted, for the establishment of historic facts. Brettonneau states, that at the time to which we have alluded, it was described as the Malum Egyptiacum. There is one period, however, from which we can historically date this disease. Ten centuries after the supposed existence of Homer, Aretœus of Cappadocia writes of an epidemic, in most respects similar to this malady. As to the exact period, at which this writer lived, it would be, perhaps, impossible accurately to state; this is not important; he is mentioned, as a contemporary of Galen, and again as living in the time of Vespasian; he is however one of the earliest and best writers, among the Greek Physicians.

Aretœus writes of this disease as the Malum Egyptiacum, while at the period immediately preceding, it is mentioned as the Ulcus Ægyptiacum, Ulcus Syriacus. The Cappadocian author enters fully into all of the details of his subject, and writes particularly of its history and treatment; his description of the symptoms is often quoted, and it will be seen at a glance, that the disease could have been no other than that which now attracts so much attention.—

"Ulcera in tonsillis fiunt, aliqua mitia, aliqua pestifera, necantia. Pestifera autem sunt lata, cava, quodum concreto humore albo, livido, aut nigro sordentia. Quòd si concreta illa sordes altius descenderit; affectus, ille eschar est, atque itá Graecè vocatur Latinè crusta."

Again he writes: "Crustam verò circumveniunt rubor excellens et inflammatio, et exiguæ raræque pustulæ orientes, hisque aliæ supervenientes in unum coalescunt, atque indè latum ulcus efficitur."

It will be seen, that Aretœus describes the tonsils, in an ulcerated condition, covered with a white, livid and black crust.

Dr. Cartwright, of New Orleans, always wrote of diphtheria, under the name selected by Aretœus. We may conclude then, as this point has been carefully examined by Rilliet and Barthez, by Brettonneau and others, that the history of this disease, if not its existence, must be dated from the writings of Aretœus of Cappadocia.

Macrobius speaks of its existence in Rome, A. D. 380. It is next after this time mentioned by Cœlius Aurelianus. Hecker speaks of an epidemic, of this character in England, in 1517. Dr. Slade mentions an epidemic in Holland in 1337. Another epidemic, in Holland, is mentioned by Pierre Forest, as having prevailed in 1557. It is next described, as existing in Paris in 1576. Fontecha, a Spanish Physician, states that it prevailed with him in 1581; and epidemically in 1599 and 1600. Villa Real, also of Spain, describes it as existing in Andalusia in 1590. A few years after this, the disease seemed to have swept over Europe. In Naples, where it destroyed five thousand persons, it is described by Carnevale, Nola, Zactus, Lusitanus, Marcus, Aurelius Severin, Syambati, and others. Herrera, Villa Real, Fontecha, Mercatus, Tamayo, Nunez, and others, write of it as an epidemic in Spain, in the early part of the Seventeenth Century. Alaymus and Cortesius describe the disease, as it, about this time, prevailed in Sicily. It visited the Island of Jamaica in 1636. These authors all write of it under different names, but the disease is the same. In Sicily, it was called gulæ morbus; in Spain, garrotillo, or morbus suffocans; in Holland, the suffocating complaint; in England, angina maligna, etc. In the early part of the Eighteenth Century, we find the disease very generally mentioned, by medical writers, in almost all countries Rev. Jonathan Dickinson, of Elizabeth Town, New Jersey, America, in 1738, wrote a letter on the subject of an epidemic, then prevailing in that neighborhood, which was undoubtedly this disease. He speaks of it, as the "throat distemper." In describing its symptoms, he states that "it frequently begins with a slight indisposition, much resembling an ordinary cold; with a listless habit, a slow and scarce discernible fever, some soreness of the throat and tumefaction of the tonsils; perhaps a running of the nose; the countenance pale and the eyes dull and heavy. The patient is not confined, nor any danger apprehended for some days, till the fever gradually increases, the whole throat and sometimes the roof of the mouth and nostrils are covered with a cankerous crust, which corrodes the contiguous parts, and frequently terminates in a mortal gangrene, if not by seasonable applications prevented. The stomach is sometimes, and the lungs often covered with the same crustula. The former is discovered, by a vehement sickness of the stomach, a perpetual vomiting; and sometimes, by ejecting of black and rusty, or fœtid matter, *having scales like bran* mixed with it, which is a certain index of fatal mortification. When lungs are thus affected, the patient is afflicted with a dry and hollow cough, which is quickly succeeded with *an extraordinary hoarseness and total loss of the voice, with the most distressing asthmatic symptoms and difficulty of breathing*, under which the poor, miserable creature struggles, until released by a perfect suffocation, or stoppage of breath. This last has been the fatal symptom, under which the most have sunk, in these parts. And indeed there have but comparatively few recovered, who suffered thus, and whose lungs have been thus affected. All that I have seen to get over this dreadful symptom, have fallen into a ptyalism, or salivation, equal to a petit flux de bouche, and have, by their perpetual cough, expectorated incredible *quantities of a tough, whitish slough* from their lungs, for a considerable time together. And on the other hand, I have seen *large pieces of this crust, several inches long and near an inch broad*, torn from the lungs, by the vehemence of the cough, etc. * * * The first assault, seen by me, was in a family, ten miles distant from me, which *proved fatal to eight of the children in about a fortnight*. * * * I have frequently observed, that once having this disease is no security against a second attack. I have known a person to have it four times in one year; the last of which proved mortal. * * * The lungs and the throat, and especially the epiglottis, are inflamed, and the last much tumefied. * * * This may be distinguished from an angina by the crustula in the throat." The Professional reader at once detects the errors of examination here, and if the trachea and larynx (as the seat of the disease, when it extends beyond sight) were mentioned, in the place of the lungs, he will recognize, in this language, the description of a simple, and again of a malignant attack of diphtheria. The same writer speaks of eruptions in his letter; but it is evident that, when these are mentioned, he confounds scarlatina at one time, and then erysipelas and other diseases, with diphtheria. Scarlatina, measles, and erysipelas were prevailing at the time, and it is manifest, that either he confounds the diseases with each other, or that they were blended, which frequently occurs; and if not blended, succeeding each other, as has repeatedly been observed, in the history of diphtheria, during the last few years. Dr. Greenhow, of London, Dr. Clark, of New York, and many gentlemen of England and of America have published such cases; and in the scarlet fever epidemics, published by Fothergill and Huxham and others, such instances are frequently detailed.

We cannot find space for many such lengthy quotations, but this has been given, because it furnishes clear and undoubted evidence of the malignant prevalence of diphtheria in America, as early as 1738, when on the contrary *all* writers, in England and America, state that it did not here exist before 1771, at which time it was graphically and first described by Dr. Samuel Bard. It is given merely as an historical fact, connected with diphtheria in America. The disease described by Dr. Douglas, of Boston, in 1736, to which Dr. Bard alludes in his essay, was evidently not diphtheria. The disease is generally and fully described, about the period of its prevalence in New Jersey, by most of the authors in Europe. In 1743 it made its appearance in Paris, and seemed to have prevailed there until 1748. This epidemic is described by Chomel, Malouin, and others. Chomel, speaking of the exudation, tell us, that about the third day, an unpleasant odour was apparent, and that this soon became insupportable. There was ichorous discharge from the nostrils, the trachea ulcerated, and death occurred about the tenth or twelfth day.

Ghisi, of Cremona, has given a description of the epidemic which prevailed there from 1740 to 1748. The epidemics of diphtheria, during the 18th Century, in England, are described by Fothergill, Starr, Cotton, Huxham, Wall, Wethering, Rumsey, and others. Dr. Fothergill described the disease as it existed in London about 1750; Dr. Starr as he saw it in Cornwall in 1749; Dr. Cotton as it appeared at St. Albans in 1748; Dr. Huxham as it prevailed at Plymouth 1753; Dr. Wall as manifested at Worcester; Dr. Wethering as he saw it at Birmingham in 1778, etc. In America, it prevailed in New York in 1771, and was classically described by Dr. Samuel Bard. It is mentioned, as prevailing in France, about the middle of the Eighteenth Century, by Dr. Slade, who quotes from the writings of Arnault and Marteau de Grandvilliers. It prevailed in Sweden in 1755, 1759, 1761; it existed epidemically at Upsala in 1762. Rosen describes the history of this epidemic: it is also described by Wilcke. There seemed to have been an arrest or absence of this disease, from the latter part of the Eighteenth Century, until one-fourth of the next Century had expired; when it reäppeared, and has prevailed, with deadly violence, at different periods, up to the present time.

We have thus concisely traced the history of this disease, from the time of Aretœus, to the early part of the Nineteenth Century. It has been impracticable to quote from the authors given, as such a course would be adapted to a volume, and not to a paper of this limited character.

The history, symptoms and general cause of the disease, as described by these authors, are for the most part similar, and such quotations would have presented more of literary, than pathological interest. For the same reasons given, we have deemed it unnecessary, and certainly not important to describe the epidemics, as detailed by these innumerable writers.

We find, in the history of diphtheria, during the present century, that it has prevailed most malignantly in France, England and the United States, and that this malignancy would be represented, by the order in which these countries have been named. Although, in the description of this disease, it would be interesting to give a brief sketch of the manner of its prevalence, in the large cities that have have been subjected to its epidemic desolations, yet (as each one of these epidemics would alone, furnish material for a a more extended paper than the present) it will only be possible to give the localities involved. Furnishing thus an historical abstract, from which the proper references may be obtained, by any one desiring to investigate the character of the disease, as it may have prevailed, in each country or locality.

The first epidemics, of which we have any records, during the present century, prevailed at Tours, in 1821; in La Ferriére in 1826 and in Chénusson in 1827. These epidemics, as is well known, furnished the subjects for the classic essays of M. Brettonneau, of Tours, France. It was supposed, by the author of these essays, that the disease was first introduced into the population of Tours, by the military legion of La Vendée. He named the disease diphtherite, and, with some modifications, it has been the name, selected by many authors, for the description and history of the malady. We will postpone an examination of the name, until we make its etymology a subject of brief consideration. The disease is next seen at Marseilles in 1826; and in Orleans in 1828. In 1843 it prevailed, as a slight epidemic, in Paris; Becquerel has given a description of this. M. Empis gives a brief account of its prevalence, as seen by himself in 1848. Boulogne became, in 1855, the scene of its earliest malignant appearance, and to M. Perrocheaud, we are indebted for a graphic description of its desolations there. With very little interruption, the disease prevailed in that city until 1857, and in this period we are told it destroyed 275 persons; it chiefly attacked the English residents. About the same time, it commenced to gradually extend over France, and we find it visiting Mont Martre, Causery, Vernuis, and many other places, described by Pichenot, in his account of the epidemic at Causery. Lespian has described its history, at Avignon in 1854, and Lemaire its course, at Cosneé. It appeared in Paris at this time, and may be said, with slight exceptions, to have prevailed there ever since; it seems to have become one of the Parisian endemics. During the years 1855 and 1856, it prevailed with very great severity in that City. There are interesting descriptions of its history, as it prevailed at St. Omer, Haute Marne, Ingrandes, L'Yonne and other places. The first reliable writings on this subject were published, as has been said, by M. Brettonneau, of Tours. Since this period, diphtheria has been the theme, for the most brilliant writers in France. We mention the well known names of Louis, Lemaire, Trousseau, Guersant, Isambert, Bouchut, Andral, Chomel, Barthez, Empis, Lemoine, Lespian, Jobért, Duché Penant, Rilliet, Pichenot, Loisseau, Olliviér, Faure, Becquerel, Aubrun, Duliquier, Charnaux, Isnard, Peter, André, Desmartis, Bouchet de Vitray and many more, the works of whom may be, with profit, consulted by those particularly interested in the study of this subject. With this brief notice, but correct record, of the history of diphtheria in France, from the commencement of this century, to the present time, we pass to the consideration of its course in England, during a similar period.

The first case authentically recorded, as having taken place in England, was at Spalding, Whaplode Drove, Lincolnshire, July, 1856. Of course other cases must have occurred, but this was the first recognized case of diphtheria. This was placed under the care of Mr. Wilkinson. A few months after, other cases were reported, and it soon prevailed as an epidemic. We find the disease, now existing in Leek, Pinchbeck, Birmingham, Brewood, Water-Orton, Erdington, and other localities soon to be mentioned. At the same time, the disease was carefully studied, and the materials now collected furnished the basis for some of the best papers on diphtheria, that have yet been published. From the period of 1856, the disease gradually extended over England, and the names of the following places represent the scenes of its epidemic visitations: Wolverhampton, Dudley, Clapham-Rise, Tattershall-Thorpe, Horncastle, Dursley, Christ-Church and Strouden, London, Manchester, Cam, Brentwood, Malden, Coningsby, Belper, Nantwich, Coltishall, Hanley, Sussex, Norfolk, Kent, Essex, Cornwall, Holdenhurst and Islington.

Webster, of Dulwich, gives cases that occurred in his practice, from 1824 to 1829, which must have been diphtheria, and Ryland, writing in 1837, furnishes cases that must have been true diphtheria. There are cases reported from Herefordshire in 1849 and 1850, that were most undoubtedly instances also of this disease. There is of course a history connected with the prevalence of diphtheria at each and all of these places, but, however instructive, it must all be omitted, and our course limited to the concise relation of the localities thus visited. To conclude the abstract, that we have thus prepared of these places, we will farther mention the remaining names: Liverpool, Lincolnshire, Muscliffe, Whitham, Penn, Redditch, Canterbury, Suffolk, West-Bromwitch, Yorkshire, Bagshot, Erdington, Rumford and Wirksworth. We are not aware, that up to the present time, any epidemics of diphtheria have prevailed in England, the localities in regard to which have not thus been obtained and recorded. Of course sporadic and occasional cases have occurred, which, not being reported, are not here noticed, but all of the epidemics, strictly so called, are most probably represented in these lists. In England, the medical writers have paid very general attention to the study and elucidation of this disease, and we consequently have a full and valuable literature, connected with it. Including those who wrote of this disease by description, if not by name, we have the familiar names of Sir E. Home and Dr. Watson; Baillié, Hart, Sanderson, Semple, Farr, Greenhow, Ranking, Hillier, and others of London; Wilkinson, of Spalding; Heslop, Wade, West, Fleming, Russell, Schofield, and Keyworth, of Birmingham; Palmer, of Water-Orten; Oates, of Erdington; Topham, of Wolverhampton; Webb, of Wirksworth; May, of Malden; Lambden, of Conningsby; Dodge, of Cornwall; Ballard, of Islington; Monckton, of Kent; Stiles, of Pinchbeck; Blount, of Bagshot; Davey, of Rumford; Cammack, of Spalding, with others whose localities are not definitely known; Gull, Lambden, Plaskitt, Bristowe, Keysworth, Birch, Leonard, Morris, Houghton, Nicholson, Bellyse, Rigden, Wigan, Hulme, Kingsford, Whitehead, Bottomley, Camps, Davey, and many others, who are not so well known to the Professional reader. It is proper to say, that this disease has not been much seen in the large hospitals of London, and this will account for the absence of so many names, that are, to the Public, "as familiar as household words." Dr. Peacock, of London, writes:

"I have not seen very much of diphtheria, for in London, at least, the disease has been quite local in its appearance, and has rarely been seen in the General Hospitals."—(Autograph letter to author, December, 1860.) This is also the testimony of many others, connected with the largest Institutions of Europe and America. We pass now to consider that portion of the history of diphtheria, which is most interesting to the American reader: the course and prevalence of the disease in the United States.

Soon after the appearance of diphtheria in an epidemic form in England, it prevailed in California. As was the case in England, the Profession had no practical acquaintance with the disease, for those who had seen it in a former century, had long since been removed. All readers were familiar with the general description of the disease, as given by Fothergill, Cotton, Starr, Huxham, Bard, Wall, and more recently by West, Copland, Evanson, Tweedie, Maunsell, and others; but these descriptions were not yet recognized, as applicable to diphtheria specially, and on its first appearance, there was of course much speculation as to its pathology, and much doubt as to its proper treatment. Dr. V. T. Fourgeaud has given a partial description of the disease, as it prevailed in California in 1856, 1857, and 1858, though the greater part of this (one of the earliest American papers on the subject) is devoted to discussing the diagnosis and pathology of the disease. He regarded it as a strictly local affection. Dr. Blake, of Sacramento, California, has given us an account of diphtheria, as it prevailed in that section of his State in 1857, 1858 and 1859. He regarded it as a distinct disease, different from croup, cynanche tonsillitis and scarlatina—a disease of the zymotic class. The disease has prevailed, at intervals, up to the present time, and having seen perhaps as much of it as any one in that State, he has not yet had cause to change his opinion. In an autograph letter of December, 1860, he thus writes: "That the old doctrine of its local character is unsustainable, few who have witnessed its effects, during the past two or three years, will be disposed to deny. I still regard it, as a strictly constitutional disease." Diphtheria has prevailed very generally in California since the early part of 1856, up to the present time, and its course and history there have been well described by many of the Physicians of that State. Very excellent papers have been prepared by Dr. V. J. Fourgeaud, of San Francisco; Dr. Blake, of Sacramento; Dr. D. Wooster, of San Francisco, and Dr. J. P. Whitney, also of that City. Dr. E. S. Cooper claims to have seen and treated quite an astonishing number of cases. Dr. H. W. Nelson gives a description of an epidemic of diphtheria which prevailed at Dutch-Flat, California; and Dr. Bynum, of Cache-Creek, California, has presented an account of the disease, as it prevailed with him.

The disease spread throughout the United States so irregularly, that it has been impossible to keep a record of the places and sections successively visited; we will not attempt this, but give all that is necessary—a list of the chief epidemics, that have appeared up to the present time. A malignant epidemic of diphtheria appeared at Albany, New York, in 1858; an account of this has been given by Dr. S. D. Willard, of that City. It prevailed chiefly among children under twelve years of age. Dr. Willard regarded it "as nearly allied to scarlatina." The disease prevailed to a very great extent in New York in 1859, and occasionally there since that period. The epidemic in that City, during the Winter and Spring of 1859, has been admirably described by many of the Profession, in the Journals contemporaneously issued. There have been excellent papers prepared by Drs. A. Clark, J. B. Reynolds, Jacobi, and others. In the published proceedings of the New York Academy of Medicine, the pathology, cause and treatment of this disease will be found fully analyzed and discussed. Here will be found, what we have not space to give: the views and experiences of many of the most generally known speakers in that body—Drs. John Watson, Gurdon Buck, A. C. Post, Krakowitzer, Jacobi, Sayre, Barker, T. G. Thomas, Percy, Green, Peaslie, J. R. Wood, Markoe, and many more whose names we have not space to mention. Dr. Jacobi testifies, that at the Canal Street Dispensary, he had treated one hundred and twenty-two cases. This may serve as an index of the general prevalence of the disease at that time. The disease has prevailed to some extent in the New England States. Dr. Lawrence describes its course at North Adams, Mass., and Dr. Holmes gives an account of its prevalence at South Adams, Mass.

Its appearance and history at the following places have been thus described: at West Stockbridge, by Dr. Meacham; Orange, Conn., by Drs. Beardsley and Jewett; in Canterbury, Conn., by Dr. Jewett, with a few scattered cases, in the Counties immediately adjacent to the last named Village. It prevailed in New Hampshire to some extent, in 1857; in Boston in 1858. Dr. Seymour has given its history at Troy, New York; in Rochester; as described by Dr. Bostwick, at Red Rock; at Austerlitz, Lebanon, Chatham, and Gallatin in the State of New York. At Buffalo, it prevailed some years since, and its history there was given by Dr. Rochester and by Dr. Austin Flint. Dr. J. G. Orton, in an autograph letter of January, 1861, states: "The present epidemic of diphtheria made its appearance at this place (Binghamton, N. Y.,) about two years since, and has continued, almost without interruption, up to the present time. It has been, in fact, the only epidemic that has extensively prevailed in this region, for the past twenty years." It has prevailed at Providence, R. I.; but Dr. Snow, of that City, writes that this has been to only a limited extent; there were seventeen deaths there from this cause in 1859, and six in the year previous. In Berkshire County and in Pittsfield, Mass., the disease has at times existed epidemically. In Philadelphia, diphtheria has at times prevailed to an alarming extent, and the disease there has been quite fatal. Its history has been well described by Drs. Condie, Meigs, Wood, Nebinger, Beasly, and others. Dr. Condie's reviews of this disease are instructive and interesting. One of the best papers that has appeared, anywhere, on the subject of diphtheria, was presented by Dr. Henry Hartshorne, of Philadelphia, in March, 1860. Dr. W. H. Thayer, of Keene, N. H., and Dr. D. D. Slade, of Boston, have each written most valuable essays on this subject. In Ohio, diphtheria has prevailed to a great extent. The epidemics at Cleveland and at Cincinnati have been very severe.—Dr. C. A. Hartmann, of Cleveland, has contributed quite an interesting paper on the disease, as seen by himself; and from Dr. Comegys we have a letter, giving a graphic description of the disease, as it prevailed at Cincinnati. Diphtheria has made its appearance, as an extensive epidemic, in Kentucky, Mississippi and Tennessee. Dr. S. A. Cartwright, of New Orleans, has given a description of the disease, as he saw it in that State. Dr. Warren Stone, who, in the death of his son by diphtheria, has had a melancholy yet practical experience with that disease, has contributed his views in regard to it. Dr. R. H. Goldsmith, of Oakland College, Miss., has published his views and experience; he has had "three hundred cases in his practice."

But this branch of our subject has already extended beyond the limits that can be assigned to it, and we must terminate its consideration by briefly giving an abstract of the chief epidemics, whose history has been *published*, and adding, in conclusion, whatever information, of a practical character, that has been furnished us by letter. Diphtheria has prevailed at Baltimore, Md.; at Charleston, S. C., (American Journal of Medical Sciences, vol. xxiv, page 82; a paper by Dr. E. Geddings); at Nashville, Tenn.; at Louisville, Ky.; at Iowa City; at Milwaukie, Wis.; and in many of the Counties of the States thus named. Dr. Meranda has described an epidemic at New Carlisle, Ohio; Dr. Coskery, of Baltimore, an epidemic in South Pennsylvania. Epidemics have prevailed at the following places, and their published description given by the following writers. At River View, Ky., by Dr. Duerson; at Milwaukie, Wisconsin, by Dr. W. S. Wells, (whose paper is both extensive and interesting); at Jacksonville, Illinois, by Dr. Prince; at Sacramento, California, by Dr. Blake; at Milton, Ind., by Dr. V. Kersey; at Sacramento, Cal., by Dr. Hatch; at Falmouth, Ky., by Dr. J. H. Barbour; at Hopewell, Ohio, by Dr. J. A. Reamy; at Petersburg, Va., by Dr. W. M. Turner; at South Onandaga, N. Y., by Dr. J. Kneeland; in Lehigh County, Penn., by Dr. A. M. Sigmund; at Newton, N. J., by Dr. J. Ryerson; in Kentucky, by Dr. S. P. Bryan; at Flushing, Long Island, by Dr. C. M. Allen; at Homer, N. Y., by Dr. G. W. Bradford; at West Stockbridge, Mass., by Dr. Levitt; in Sligo County, Kentucky, by Dr. J. H. Wheeler; 'at Iowa City, by Dr. W. M. Cochran; Plattsmouth, Nebraska, by Dr. R. R. Livingston; at Baltimore, (to a limited extent,) by Dr. F. Donaldson; and at Cincinnati, Ohio, by Dr. J. A. Thatcher.

Dr. Sweat writes, that he has seen cases at North Parsonfield, Maine; Dr. Woodward, that the disease has prevailed epidemically at Brandon, Vermont; Dr. James A. Reeves, of Fairmont, Va., that the disease has prevailed with "appalling mortality" in Preston, Taylor, Barbour, Randolph, Marion, and other counties in Virginia; Dr. W. S. Chipley, that he has seen it at Lexington, Ky.; Dr. A. B. Palmer, that it has prevailed to a limited extent, in Ann Arbour, Michigan; Dr. C. S. Webber, that it has been seen at Charlestown, Mass.; Drs. Borland, Bowditch and Gould state, that the disease has never prevailed, to any marked extent, at Boston, Mass.; Dr. Cain, that he has frequently seen the disease in Charleston, S. C.; and Dr. Bemiss, of Kentucky, that it had very generally prevailed in that State; Dr. M. L. Linton, of St. Louis, Mo., states that he has frequently seen the disease in his City, but that it has not prevailed to any great extent. Some parts of the United States have almost entirely escaped the visitations of diphtheria. Dr. Lee, of Pensacola, Fla, writes that the disease had not appeared there; such is also the testimony of Dr. Westmoreland, of Atlanta, Ga.; Dr. G. W. Dove, District of Columbia, writes that "it has been my good fortune not to have encountered a single case of diphtheria;" Dr. Bozeman states, that up to the time of his leaving Montgomery, Ala., he "had not met with a single case of diphtheria, nor had any other practitioner;" Dr. S. Howard, of University of Virginia, writes, "I have not met with a single case of the disease here;" Dr. Brown, of Yanceyville, N. C., states, that, if at all, it had only prevailed to a limited extent in his State.

Diphtheria has prevailed in Scotland and in Ireland; in Sweden, Switzerland and Germany; in Spain and Italy; in Mexico and in Peru; but we can not, with regard to the history of the disease, go any farther into details. Drs. MacKenzie, Abercombrè and Brown, of Glasgow; Drs. Laycock, Crighton and Alison, of Edinburgh; Dr. Corrigan, of Dublin; Dr. Adriazala, of Lima, have all written on this subject, and their papers can be consulted, by those taking a special interest in the epidemics of these countries. In addition to these, we may mention the names of Friedereich, Virchow, Rokitansky who have described the epidemics of Germany; and Laman and Mestizzi, who have described the disease, as it has existed in Mexico. The etymology of the word will next be considered.

(TO BE CONTINUED.)

ECLECTIC DEPARTMENT.

I.—LECTURES ON THE RECENT ADVANCES OF OUR KNOWLEDGE IN THE DIAGNOSIS AND TREATMENT OF FUNCTIONAL AFFECTIONS.

By C. E. BROWN-SEQUARD, M. D., F. R. S., &c.

LECTURE II.

General Remarks on the Causes, Diagnosis, and Treatment of Functional Nervous Affections

1st. *Means of Increasing the Quantity of Blood in Peripheric Parts of the Body.*—In all cases of diminution of size and density in muscles attacked with reflex paralysis, lead palsy, paralysis agitans, rheumatic paralysis, or idiopathic and reflex wasting palsy, as well as in cases of anæsthesia, with diminished temperature of the skin, it is very useful to increase the quantity of blood in the paralysed, the trembling, or the anæsthetic parts. For this purpose, the best mechanical and physical means are the following: 1. When the affected part is not extensive, dry cupping with the ordinary apparatus may be resorted to with advantage, particularly in cases of local hysterical anæsthesia, with great coldness of the skin. 2. Junod's boots to be applied every other day, either to a whole arm, or to a whole lower limb, in cases in which there is no œdema.* 3. Leg or forearm baths at a temperature of 104° Fahr. 4. Covering the affected part with heated flannel or woolen stocking or sleeve. 5. Shampooing, without uncovering the part, if the temperature of the room is low. 6. Frictions with a hot piece of flannel only in the direction of the venous current. 7. The affected part should be kept as much as possible in a lower position than the rest of the body.

2d. *Means of diminishing the quantity of blood in the trunk and head without bleeding.*—It may be necessary to employ means of this kind in the comatose state existing sometimes in certain functional nervous affections, such as epilepsy, eclampsia, delirium tremens, or in nervous disorders due to uræmia, cholesteræmia, or some other kind of toxæmia. Junod's boots may answer the purpose; but there is a simpler means, which has the great advantage of being everywhere at hand, and is superior to these cupping boots in this respect also, that it may be applied with hardly any interruption for hours and days if necessary. This means consists in the application, on the upper part of the four limbs, of ligatures tight enough to diminish considerably the return of blood to the heart, without preventing much the arrival of blood. By so doing, a large amount of blood may be imprisoned in the limbs, and all the immediate benefits of bleeding can be obtained, while the bad effects, it may have, only exist during the time the ligatures are kept on the limbs. In making use of this means it is important to loosen the ligatures every fifteen or twenty minutes, and to apply them in a new place after each loosening. To avoid the danger of a sudden return of a great deal of blood, they must be removed successively at an interval of at least a few minutes between two succeeding removals.

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* In another lecture I will give some details on the use of this powerful means of increasing the amount of blood in a limb. I will only say now, that I have ascertained by experiment on animals, that muscular irritability acquires a notably greater degree in a limb dry-cupped for eight or ten minutes by Junod's boot.

3rd. *Means of increasing the amount of blood in the trunk and head.*—It may prove necessary, or at least in some cases of syncope, (in hysteria, in epilepsy, and in a few other neuroses due to anæmia, chlorosis, &c.,) to increase the amount of blood in the trunk. In addition to the so-well-known means of laying the patient flat on his back, his head left on the level of his body, and his four limbs lifted up, so as to have the help of gravitation for the accumulation of blood in the trunk and head, it seems of real importance to press with the hand, or with a tourniquet, on the main arteries of the four limbs, near their place of issue from the trunk. Besides these means, it is of great importance to excite the heart to beat by frequently repeated pressure on the sternum and ribs (over the heart); as I have ascertained, on various species of animals, that when the movements of the heart have just ceased, in consequence of a reflex action from an irritation of the abdominal sympathetic nerve or of a direct irritation of the medulla oblongata or par vagum, a direct mechanical excitation will make it beat again.*

4th. *Other mechanical and physical means.*—I will not speak now of the pressure on the carotid arteries or on nerves, as these means are not simply mechanical. The same reason makes me postpone what I have to say of the application of ligatures round a limb or some other part in cases of an *aura epileptica* or *hysterica*, &c. I will now only say, that when an attack of epilepsy, of eclampsia, &c., is followed by a comatose state, or even a sleep with heavy breathing, it is of the greatest importance to place the head of the patient in such a position that the tongue, which is then nearly paralysed, will not fall on the larnyx and cover its aperture.

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* There is a most powerful means of exciting the heart to beat in cases of partial syncope, which I do not mention in the text, because it is not mechanical. It consists in stopping completely the breathing of the patient for one-half or two-thirds of a minute. The blood then becomes more charged with carbonic acid, and more exciting to the heart.

VI. *Means of treatment through an irritation of the sensitive and other incident nerves.*—These means are of the utmost value; and the recent progress of our knowledge, as regards their mode of action, contains a large part of the advance of the therapeutics of neuroses in our time. These means act chiefly by a reflex action, most of them on the vaso-motor nerves, and some of them on the nutritive and secretory nerves. Many of them give a sensation of pain, while they are applied or afterwards; but most likely their principal mode of action is through the irritation of the non-sensitive incident nerves (excito-motor of blood-vessels, and excito-nutritive and secretory nerves.) I will state briefly what are the most interesting points concerning the therapeutic influence of these means.

1st. *Ligatures, pinching, rubbing, and circular blisters.*—When I first began to make use of ligatures in epilepsy, I had hardly any other than theoretical objections against the view that, in that convulsive affection, ligatures serve only to prevent the passage upwards of an irritation, travelling from the periphery towards the nervous centres. I soon saw several cases similar to a few already known, in which the cause of the aura was clearly in the nervous centres, and in which, however, ligatures acted as marvellously in preventing attacks, as in cases in which an aura had undoubtedly its cause in a peripheric part. When the extremely various sensations, which accompany an aura,* like the aura itself, have their only cause in the nervous centres, as it was in the cases I have just mentioned, it is quite evident that there is nothing going from the periphery to the nervous centres, and as evident that ligatures in such cases must act by some other means than by preventing the passage of something. This first point being clearly established, I found that ligatures, in cases of an aura from a centric origin, acted with greater efficacy when they suddenly induced powerful irritation of the nerves of the skin, than when they were applied gradually and slowly, either tightly or not. After having made this step, I ascertained that it was so even in cases of an aura starting distinctly from the periphery. I found afterwards, that in both kinds of cases, pinching, pricking, striking, or rubbing the part which is objectively or only subjectively the place of origin of an aura may prevent a fit of epilepsy or of hysteria, or simply of local or general convulsions.

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* I say, "accompany an aura," because I have found that the sensations which are miscalled aura are not at all essential, as they vary extremely, and may exist or be absent altogether, the aura, notwithstanding their absence, being as powerful as any apparently felt aura can be. These sensations, therefore, which are erroneously considered as constituting the aura, are merely accidental phenomena which accompany it.

I was led therefore to look upon ligatures in those cases, as acting chiefly as a means of irritation of the nerves of the parts on which they are applied, irritation producing a favourable change in the nervous centres.[*] The following results I have subsequently obtained: 1st. That it is not necessary to apply an irritation (by a ligature, pinching, &c.,) on the very limb from which an aura seems to start, as the same means applied elsewhere may succeed; but the chance of success is much greater by the former than by the latter way. 2d. That a constant or a frequent irritation (by a blister, and issue, a seton, the actual cautery, &c.,) on the place from which an aura seems to start, may not only prevent fits, but, by some change of nutrition locally (if the aura is really of peripheric origin) and in the nervous centres, may reduce or even destroy altogether the tendency to fits, and lead to a complete cure. 3d. That, as a circular ligature may procure a temporary good effect, so a narrow *circular blister* applied all round a limb, a toe, or a finger, or a circular cauterization, with a white-hot iron, may cure epilepsy, hysteria, neuralgia, &c., in cases with a distinct aura. 4th. That even in cases in which there is no known aura, felt or unfelt, ligatures, pinching, and other means of irritation may prevent fits when applied on persons expecting a fit. Before I pass to another subject, I ought to say, that for a long while a positive fact has been known, (not generally, however,) which shows that ligatures applied to the limbs, when a fit of fever and ague is about to take place, may prevent the fit. As malarial poison produces fever, by a peculiar influence upon the spinal cord, so the success of ligatures against fever and ague is due to a favorable change in a nervous centre, induced by a peripheric irritation of incident nerves.

2d. *Cold.*—Ice is the most powerful means we possess to produce a reflex contraction of blood-vessels. Before a positive demonstration was obtained on this point, it seemed already extremely probable from the following well-known facts: that ice applied on the abdomen or on the back, or in the vagina and rectum, often stops a hæmorrhage from the womb; that, applied to the head, it will do some good in cases of congestion or inflammation of the brain or its meninges, or in cases of symptomatic or idiopathic headache; that it may stop a hæmoptysis when applied to the chest—a hæmorrhage from the bowels, the stomach, or the kidneys when applied to the abdomen or the loins; that it may be employed with marked benefit against the inflammation of the viscera or serous membranes of the chest and abdomen, and especially against metro-peritonitis, as shown particularly by Kiwisch and Béheir; that, applied all along the spine, it may cure tetanus, and be useful against spinal meningitis.[*] These facts gave a great probability to the view, that ice acts as an irritant of incident nerves, and through the influence of this irritation on the spinal cord or base of the brain produces a reflex contraction of blood-vessels; but, so far as I know, there was no positive fact establishing this peculiar influence on blood-vessels, until the experiments I made about fifteen years ago[†] with my friend, Dr. Tholozan, clearly showed this important influence of ice. We found that dipping one hand into water at freezing-point produces in the other hand considerable contraction of blood-vessels and a corresponding diminution of temperature. This fact, of which I shall have to speak again in another lecture, leaves hardly a doubt as regards the mode of action of ice in the cases in which it is daily employed, with the view of producing a remote effect. Recently, Dr. Chapman has had the idea of applying ice to the spine, with the purpose of paralysing the vaso-motor nerves of the limbs or of the head. He states that the application of ice to the lumbar region of the spine produces a dilatation of the blood-vessels of the lower extremities, and all the consequences of a greater afflux of blood; and that a similar application between the shoulders produces the effects of the section of the two cervical sympathic nerves. Whether he be right or wrong in his explanations, he at any rate relates facts which deserve to attract the attention of the Profession. We are not frequently enough successful in our treatment of neuroses to neglect means which, according to his statements, have cured so many cases of epilepsy, or of other nervous affections. It is to be hoped, therefore, that Physicians of large hospitals, will give a fair trial to the means he proposes, and ascertain the real value of cold applications to the spine in the treatment of neuroses. Before dismissing this subject, I will mention that a patient of Mr. Ernest Hart, has been cured of epilepsy and progressive atrophy of the optic nerve, by his applying ice to the spine, and that the same patient had only derived a slight benefit from the use of the valerianate of atropia under my care[‡] This would be the place to speak of hydrotherapy, if I had time to treat of all the therapeutical means. I will only say that an important addition to the proofs of the reflex influence of cold water on blood-vessels, has been obtained by Dr. L. Fleury, who, by careful measures, has ascertained that, after the application of a cold douche on the skin, a congested spleen, or a congested liver, will sometimes diminish in volume much more than had been stated by other Practitioners. Several interesting facts, lately observed by a talented young Physician, Dr. Béni-Bardé, gave a confirmation to the view, that the therapeutic influence of hydrotherapy is due to a reflex action on the internal organs from the excitation of the skin by cold water.

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[*] The influence of an external irritation in producing a favorable change in the nervous centres is beautifully illustrated in cases of myelitis existing in a small zone, in the upper or middle part of the dorsal region, leaving below it all or nearly all the dorso-lumbar enlargement of the spinal cord almost in a healthy condition. In four well-characterized cases of that kind that I have seen, one of them with Professors Trousseau and Nelaton, another in consultation with Dr. Verneuil, and a third, an hospital patient, seen by my colleagues, Dr. Ramskill and Dr. Hughlings Jackson, there were, as usual in such cases, extremely violent and frequent reflex tetanic spasms in the lower limbs. In every instance these spasms at once abated, and quickly ceased, when the big toe of either of the feet was seized and forcibly drawn down, flexed as much as the ligaments of the joints would allow. I think it would be well to try the same means in tetanus, and particularly traumatic tetanus.

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[*] The above facts have led me to propose (Lectures on the various Forms of Paralysis of the Lower Extremities, 1861, pp. 91, 92) the use of pounded ice, to be applied in bladders all along the spine in cases of hæmorrhage in the spinal canal. I have since then made a useful application of this mode of treatment in a case of that kind.

[†] See Journal de la Physiologie de l'Homme et des Animaux, vol. 1, 1858, p. 497.

[‡] It is as well to say now, what I will try to prove by-and-by, that the application of ice to the spine chiefly acts like any other irritation of the skin, but with more power, modifying remedially the nutrition of the nervous centres, and particularly of the base of the brain.

3rd. *Actual cautery and other applications of heat.*—Jobert de Lämballe, Valleix, and others have exaggerated the advantages of the so-called transcurrent cauterization against neuralgia; but there is no doubt that this means is one of the most valuable in that affection, and is very useful against other neuroses. I may say that it is not at all necessary to produce a burn that will give a great discharge. If the iron employed has a smooth surface; if, besides, it is applied only at white heat, and passed quickly over the skin, with a gentle pressure, it hardly gives pain. The epidermis and a very thin layer of the skin dry up and fall off within two or three days, leaving a reddish mark, which disappear before very long. This means I have employed with great advantage in a case of angina pectoris, and in many cases of epilepsy and neuralgia, and with some benefit in cases of contracture, of torticollis, of paralysis agitans, &c. The application of heat in many other ways (by Mayor's hammer, for instance) is very useful in a great many cases of nervous affections. In a case of coma, with convulsions, due to a complete arrest of the urinary secretion after an attack of renal hæmaturia, in 1851, Dr. Tholozan and myself, after twenty-four hours of unsuccessful treatment, decided to apply heat on the skin of the loins and sides of the abdomen. A large silver spoon was dipped into the boiling water, and was applied on eight or ten places. To our surprise and delight, we soon found the respiration improving, and in less than a quarter of an hour the convulsions ceased, and the patient came to his senses and passed a little water. The return of the urinary secretion had saved him.[*] No doubt the irritation of the skin had acted by a reflex action on the secretory nerves of the kidneys, and produced the secretion of urine.

4th. *Alternative applications of cold and heat.*—Led by the well-known powerful influence of alternative immersions of newly-born children into cold and warm water, in restoring respiration, I have often applied, with more or less good effect, cold and hot water to the spine, with a view of producing a contraction of blood-vessels of the spinal cord. Whether these vessels are already somewhat contracted, as is most likely the case in reflex paralysis or reflex anæsthesia, or dilated, as is often the case in hysterical paraplegia, some good may be obtained in these two opposite conditions from the use of cold and hot applications, owing to causes which I will explain in another lecture. I have found alternative applications of ice and hot poultices very useful against neuralgia.* Dr. Ramskill has obtained some benefit from alternative immersions of a paralysed limb into very cold and hot baths.

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[*] A few years afterwards the patient, who was a Physician, succeeded with me, by the same means, in saving the life of a patient who was attacked with cholera, aggravated by uræmic coma and convulsions.

5th. *Cauterization of fauces and larynx.*—A man of some talent, who unfortunately allied eccentricity to a genuine love of his Profession, Dr. Ducros, used to treat many nervous and other complaints by the application of ammonia to the fauces. More rational researches have shown, that a cauterization of the fauces, and still better, of the mucous membrane of the larnyx, is of the utmost value in the treatment of whooping-cough, of several other spasmodic affections of the larynx and the bronchial tubes, of diphtheritic or hysterical paralysis of the larynx and pharynx, and in that form of epilepsy which is due to laryngismus.

6th. *Other kinds of irritation of incident or sensitive nerves.*—Many applications on the skin have a great power in changing the state of nutrition of the nervous centres or of the peripheric parts attacked with pain, spasm, &c. Of the means of treatment of this kind that have recently been proposed, I will only point out the use of nitrate of silver and of sulphuric acid on the skin in cases of neuralgia; the use of the continuous galvanic current, as proposed by Remak, in many nervous affections, and the singular, but certainly sometimes successful application of sulphuric ether in the external ear against functional deafness.

VII. *Complex modes of treatment, combining the two processes of irritation of nerves and a modification of the blood.*—Amongst the relatively new modes of treatment belonging to this class, I will briefly mention a few, and speak at some length of only one. Tonic and exciting medicated baths, such, for instance, as a bath with sulphuret of potassium, or a bath with arseniate of soda, have been found very useful in chorea, and in most of the nervous affections due to anæmia, chlorosis, and rheumatism.[*] Turkish and Russian baths have proved useful in reflex paralysis, and in neurosis, due to gout and rheumatism. Another mode of treatment which deserves more than a cursory mention, may become before long of very great importance. Although its influence on the blood (at least in a direct way) is probably *nil*, I will speak of it now as it was at first considered as acting only through some change in the circulation of blood in the head. This mode of treatment, which has only given yet but a small part of the good effects it can give, consists in a pressure on the par vagum and the cervical sympathetic nerve. It has been employed with the idea of diminishing the quantity of blood in the head by pressure on the carotid arteries; and it has proved useful in cases of mania, of headache, of vertigo, and particularly as a means of shortening a fit of epilepsy. Dr. Alex. Fleming has also made a successful use of that means to induce sleep. We owe to Dr. A. C. Pinel, and to that most ingenious and accurate physiologist, Dr. Augustus Waller, the demonstration that the principal effect of an attempted pressure on the carotid artery, is to irritate and put in play the par vagum, and diminish, consequently, the movements of the heart. My own researches show, that the cervical sympathetic nerve also is excited, as proved chiefly by the dilatation of the pupils. If the pressure is considerable, the effects of a section or a paralysis of the two nerves are observed.[†] I will return to this subject in the lectures on Vertigo and Epilepsy, adding only now that we have in that compression of the cervical sympathetic a most valuable means against the *petit-mal*.

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* These alternative applications of ice (for ten minutes) and hot poultices (for an hour,) which I long ago recommended as a means of preventing the formation of bed sores and sloughs on the nates, and elsewhere in cases of myelitis, meningitis, or fracture or dislocation of the spine, have now been so often employed successfully by myself and many other medical men, that I think I may safely say that these morbid alterations of the skin might be always prevented by these simple means.

VIII. *Improvement of the blood, and elimination of certain poisons.*—I will only make a few remarks under this head. Modes of treatment consisting in attempts to furnish to the blood substances, which are deficient either in itself or in the tissues, (such as iron in cases of chlorosis and anæmia, or phosphorus in certain nervous affections and in cases of seminal losses,) or to prevent certain secretions, (as that of sugar in diabetes,) are gradually being replaced by sounder therapeutic principles, grounded on a better knowledge of the causes of the alterations of the blood, or of nutrition and secretion, and also on a better appreciation of the immense value of hygienic means to improve the condition of the blood and the great organic functions. For instance, it has been shown by Sandras, Dalpiaz, Becquerel, Eismann, and others, that chlorosis is a nervous affection, and that the deficiency of iron in the blood of chlorotic patients occurs only after this affection has existed some time, and is an effect instead of a cause. It has been further shown, that iron serves to cure that affection, only on account of a peculiar influence, which causes the food to be transformed more easily into blood, and perhaps, also, of a direct improvement in the nutrition of the nervous centres. Other metals, which are not normal constituents of blood globules, especially manganese and silver, (particularly the oxides of these metals,) sometimes act better than iron in cases of chlorosis and anæmia. He who will read attentively the remarkable papers of Bouchardat on the Pugilist's training, and on the rapidly curative effect of exercise and good food in diabetes, will soon be convinced of the immense value of purely hygienic means in improving nutrition and secretion. It is quite natural, there, that gradually the idea is being abandoned that when whenever a principle is diminished in quantity in the blood or in the tissues, the best treatment consists in trying to increase its amount by giving as a remedy the defiicent substance. The selection of a remedy as a tonic or a stimulant ought, therefore, to be quite independent of any such chemical view, and we ought to let a good diet and all the principal rules of hygiene take care of the composition of the blood, remembering, however, that it may be useful to the patient to employ the kinds of food which we know to contain, in easily absorbable forms, iron, phosphorus, or some other substance which seems to be in insufficient quantity in the blood or in the tissues.

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[*] Four ounces of sulphuret of potassium are used for a bath. As regards the arseniate of soda, Dr. Noel Gueneau de Mussy, who has often employed it lately, recommends it being used with sub-carbonate of soda: one hundred grammes (3½ ounces) of this last remedy, with one gramme (1 scruple) of the arseniate, for a bath.

[†] In performing this operation, it is important to avoid pressure on the veins of the neck or on the trachea, which had most likely been pressed upon in the cases described in the following extract from a work of Jacobi. There is a feeling of burning heat, which spreads suddenly over the head and neck down to the chest; or when the compression was merely on one side, over the corresponding side of the head and neck, with a feeling of heat within the head in many cases. The face becomes darker, with, frequently, the production of a vivid colour, an extremely painful sensation of compression of the chest, a feeling of tension, weight and pain in the head, giddiness, staggering, sleepiness; actual sudden sleep, with stertorous breathing; in many, incipient syncope, with uncertainty in the use of the lower extremities, stumbling, and in some cases they suddenly fall down with entire insensibility, but speedily recover."—Jacobi "On the Nature and Treatment of Insanity," in Brit. and For. Med. Rev., vol. xxii. 1846, p. 14.

As regards the elimination of mineral poisons, which have produced functional nervous affections, I will only say at present that the discovery of Melsens, which shows the value of large doses of the iodidede of potassium for the expulsion of lead and mercury from the system, has been universally recognized. It is important to remember that the dose of that salt must be very large for its successful influence. The statements cf Melsens and N. Guillot, on this point, have received positive confirmation from researches by Dr. W. Budd, of Bristol, and Prof. Easton, of Glasgow. My own observations agree with the conclusions of these able Physicians.—The elimination of lead and mercury takes place chiefly by the urinary, salivary, and cutaneous secretions. Consequently saliva must be spit and the skin very frequently washed, so as to avoid a partial absorption of these poisons after they have been secreted.

I will not speak of the elimination of morbid poisons (such as those of diphtheria, rheumatism, gout, syphilis, leprosy, &c.,) having produced nervous affections, because nothing of great importance has been found recently that applies to all, or almost all, those poisons. The only fact worth mentioning is, that the iodide of potassium may serve for the elimination of all but one of them.

IX. *Special use of anæsthetics.*—I have already said that chloroform, taken by inhalation, may be useful as a means of preventing an expected attack of hysteria, of epilepsy, &c. I will now point out the importance of inhalations of chloroform in three particular kinds of cases.

1st. When the comatose state due to uræmia or following a violent attack of epilepsy is frequently interrupted by tonic or clonic spasms of the respiratory muscles, increasing the profoundness and duration of the coma, I have employed inhalations of chloroform without any appearance of greater harm than is usual in surgical cases, and with the beneficial result of shortening the duration of the stupor, by preventing the spasmodic contractions or diminishing their violence. This mode of treatment is known to be particularly useful in almost analagous circumstances—i. e., in cases of puerperal convulsions.* In many cases of epilepsy, in which a large number of attacks usually occurred in a day or a day and a half (such a series of seizures being followed by complete freedom from fits for three, four, or six weeks,) and in which also a comatose state usually appeared soon after a few attacks had taken place, I have found the benefit due to chloroform to be very great, the fits being much lessened in frequency and violence, the comatose state rendered shorter and less profound, and the period of great mental aberration after the cessation of the coma considerably diminished.

2d. In the maniacal or delirious state due to hysteria, epilepsy, or uræmia, and also in cases of aggravated chorea preventing sleep, chloroform is of immense service, particularly if morphia or some other somniferous remedy is given to the patient, either by the hypodermic method, or by injection into the rectum, as soon as chloroform has produced sleep. Dr. Briquet states that nine times out of ten he has stopped attacks of hysteria by inhalation of chloroform. I have not been quite so successful as Dr. Briquet in cases of hysterical convulsions, but attacks of delirium and mania due to hysteria, are almost always quickly brought to an end by chloroform.

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* The value of chloroform in puerperal convulsions is conclusively shown by the following facts, reported in a prize essay by Dr. Liegard, of Cæn. As there is usually one case of eclampsia in 200 confinements or deliveries, and as before chloroform was in use there was one death out of two cases of that convulsive affection, there should have been 20 deaths from it, (without counting the deaths of a number of children) out of 10,000 deliveries in which, however, there was no death from that cause—a result which Dr. Liegard justly attributes to the use of chloroform.

3d. In the case of a gentleman who had pretty regular weekly attacks of epilepsy, I once employed chloroform by inhalation, almost without interruption for two or three days successfully, with the object of preventing the expected fit or fits. It was of the greatest importance, in that case, to prevent a fit, as the patient in a preceding attack had fractured and dislocated one of his arms.—The inhalations of chloroform saved him from the expected attack, and the callus had time to be formed before he had another fit.—This patient was seen with me by Mr. Robert Dunn.

X. *Recent advances of our knowledge as regards the mode of action, the mode of administration, the doses, the antagonism, &c., of remedies against functional nervous diseases.*—I only wish to make a few remarks on these various subjects, for if I tried to speak at length of each of them, I should be led too far. I begin by what relates to the real mode of action of the remedies used against the neuroses.

(TO BE CONTINUED.)

III. OZONE: ITS RELATIONS TO HEALTH AND DISEASE. An Essay which received the Fiske Fund Premium June, 1861. By E. S. GAILLARD, M. D., of Richmond, Va.

[CONTINUED.]

Amid a desultory enumeration of the artificial sources of this substance, was mentioned the well tested fact, that a current of electricity, passing across the surface of water, generated ozone.—This simple discovery, as trivial as it appears, is not only interesting, but important in a scientific point of view. What is it that gives polarity to the magnetic needle, but that vast electrical belt which encircles the globe? This belt, though ever changing, is as demonstrable as many of the truths in science. It was successful labour in this field that rendered enduring, the reputation of Brewster, Becquerel and others, and science, at least, never confers an honour, unless the votary be worthy of the gift. The magnetic meridian is one of the great truths of chemical philosophy. We are, therefore, forced to believe, that a prime effect of this subtle fluid, in its magic circle, is, from the expanse of water which it spans, to elaborate this new and powerful agent; an agent bringing purity to an atmosphere which would, otherwise, soon contain within itself the seeds of inevitable death. This, one of the chief natural sources of ozone, has not, we believe, ever been suggested, and it is now offered for analysis and reflection.

Ozone is generated on a stupendous scale by the electrization of oxygen, which escapes from all bodies of water. Varied and beautiful experiments demonstrate the truth of this. We will mention a few of the most important. Water being placed in an earthenware vessel (varnished,) supported on a tripod of three glass bottles (to counteract the effect of terrestrial electricity,) and covered with a glass receiver, generates ozone in very full and decided quantity. This glass bell receiver has attached, to the top of its inner surface, an ordinary ozonoscope. The experiment should last 24 hours, and at the close of it the ozonoscope usually registers 7 or 8 of the ozonometric scale; 10 representing the maximum quantity of ozone existing in the atmosphere. It will be observed that ozone is thus largely generated. This experiment has been made with river, rain and spring water; the result being the same. Experiments have proved that ozone is, in this manner, always formed. It is in this particular way formed most largely during those hours of the day which represent the maximum of evaporation; influenced, of course, by the temperature of the day, the agencies of the sun and the clearness of the sky. It is important to know if this oxygen, going to form ozone, proceeds from the decomposition of water by evaporation, or if it is furnished from the atmospheric air contained in the water.

The same experiment repeated with distilled water, gives as a result number 2 of the ozonometric scale. If the distilled water be boiled so as to expel all contained atmospheric air, the ozonoscope remains unchanged. This proves that, in this process, the ozone is not formed from the oxygen escaping during the decomposition of the water by evaporation, but from the oxygen contained in the water. The oxygen is converted into ozone (in the presence of water) by the electrical and electro-chemical reäctions, which always attend the process of evaporation. If the water is made to give up all of the oxygen mechanically contained in it, ozone is not manifested during its evaporation. Distilled water, unboiled, contains a little air, enough to give number 2 of the ozonometric scale. To make these experiments more conclusive, the surface of the water was covered with oil, so as to prevent all connection with the atmospheric air. If light, during the experiments, be destroyed, the result is immediately changed. When a glass receiver is used and rendered non-diaphanous, ozone is not formed; a cloth thrown over the glass will prevent its formation; sometimes the prevention is complete; the diminution in the quantity formed is invariable.

This is a most interesting fact to the student of hygiene; it is a beautiful and suggestive method of demonstrating the effect and necessity of light. Ozone will not be formed if this experiment is performed at night. It will not be formed, either in the day or night, if artificial heat be substituted for that of the Sun. In the formation thus of ozone, there must be exposure to sunlight. When salt water is used, the results are the same. Rain water is most active in the genesis of ozone; it is well known that this contains the largest quantity of atmospheric air. Most of these experiments were originated and performed by M. Scoutetten. These are the most important and interesting results demonstrated in the investigation of this branch of the subject.

Without any labored appeal to facts and mathematical statistics, we can realize the stupendous extent to which this agent is generated, when the Sun shines down on the vast areas of sea and lake and river which form so large a portion of our globe.

It has long been supposed that the pine tree exerted a chemical effect (as it is termed) upon the poison of malaria; it is interesting to find, in the existence of ozone in such atmospheres; a plain and simple explanation of this undoubted fact. As a rule, almost without any material exception, malaria does not prevail in the dry atmospheres of the pine forest. It is to such atmospheres that thousands resort during the summer months at the South, for immunity from malarial pestilence. What is the explanation? It will be recollected that ozone was manifested in the air of a vessel containing turpentine, if the vessel be exposed to the agencies of sunlight. The ozogenetic properties of the pine tree have never been mentioned by any one; yet does not reason teach, that for the production of this great atmospheric purifier (ozone) the pine forest is one of the most active agents in the extended laboratory of nature? It has always so seemed to us, and we offer the suggestion for consideration. The balmy influences of these terebinthinate atmospheres are thus reasonably explained, and the cause of their general freedom from malaria suggested. All rooms newly painted, in which turpentine has been made the vehicle of the pigment, give a deep hue to the ozonoscope. The same principle, it is claimed, must necessarily pervade the atmosphere of the pine forest. We submit the suggestion, however, without farther reasoning, for general consideration. We pass on now to consider ozone as formed by the electrization of oxygen given off by vegetation; this being the last, but a most important natural source of this agent.

Scoutetten has announced, after many careful experiments, that plants do not give off oxygen during the day, as declared by

Priestley first, and many others after him; but that this gas is ozone. His experiments for proving this novel and original theory are at least ingenious and plausible. They deserve close examination and criticism, and, if invariably true in their results, cannot be too generally known. This laborious philosopher should receive all possible credit for his originality, enthusiasm and energy.

If a bell glass receiver, with an ozonoscope attached to its inner-surface, be placed over vegetation, it is soon filled with a gas which gives a blue colour to the ozonoscope. No one claims that oxygen can possible produce this result. To prevent the possibility of terrestrial electricity influencing the result, the plants were suspended by silken strings. The ozonoscope usually registered 5 or 6 of the scale. Ozone was not thus formed, if the experiment was made at night, or if the sunlight was obstructed. This experiment would very prettily demonstrate the actinic agencies of sunlight.

It was important, in this experiment to discover whether ozone was formed from the oxygen attending evaporation from the surface of the leaves, or whether it was due to the chemical and vital actions taking place in the plant. This was determined by inverting two glass receivers over water and vegetation respectively. The receiver over the water gave no evidence of ozone, whilst that over the vegetation soon became filled with a gas which discolored the ozonoscope. This experiment proves, what has already been stated, that ozone is not formed from the oxygen of evaporation; it also proved that ozone is formed during the day, from the chemical and vital actions taking place in plants. It was thus demonstrated, that plants evolve ozone when under the influences of sunlight; that this action ceases at night; in artificial obscurity, and where the plants do not receive the direct rays of the Sun. If a glass receiver is inverted over dried earth deprived of vegetation, the ozonoscope remains unaltered. These facts being established, we can appreciate, if not realize, the vast amount of ozone discharged from the vegetating surfaces of the earth. When reflecting upon its various other sources, we cannot but feel the important part it must play on the health and well-being of humanity. We will now consider the ozonoscope, in its importance, nature and manufacture.

As soon as ozone was discovered by M. Schönbein, he sought for some reliable means of detecting its presence. After various experiments, he selected the iodide of potassium as being best adapted to this purpose, and combined with it some substance for manifesting the amount of decomposition taking place in it, when subjected to the influences of ozone. This substance is starch. Many other tests have been suggested; some ingenious and delicate, but none answering so well as the test selected by M. Schönbein. In making the ozonoscopes, it is essential that the iodide of potassium should be absolutely pure. The commercial preparations are totally unfit for experimental purposes, and only obscure and vitiate the results when used, the experiments being not only defective, but the deductions altogether false. The best commercial preparations are adulterated, and although not sufficiently so to render them unsuitable for therapeutic purposes, still they are totally unfit for the laboratory. Those designing to work in this field, should obtain their ozonoscopes from Germany or France, where they are manufactured with great care. It is very difficult to obtain, in America, a perfectly pure preparation of the iodide of potossium. Of course there are many laboratories where it might be manufactured, and our pharmaceutical chemists could prepare as good an article as could be obtained anywhere; but the important fact to be recognized is, that our laboratories do not produce a good preparation, and our chemists do not feel sufficiently interested to supply what is wanted for such purposes. There is one source for obtaining a perfectly pure article, in the United States, which should be known. This is at the U. S. Navy Laboratory attached to the U. S. Hospital near the Navy Yard at Brooklyn, Long Island. At this laboratory (under the charge of Dr. Bache, an accomplished chemist,) the Government manufactures all preparations intended for the Navy.. Dr. Bache, we are authorized to say, will always take pleasure in furnishing a perfectly pure KI, when authorized by the Secretary of the Navy to do so. It is superfluous to say, that this permission can always be readily and immediately obtained; and thus one great obstacle and inconvenience be removed.

The ozonoscopes are thus prepared:—℞. Potassii iodid., gr. i.; amyli pulv., grs. x.; aquæ dist., grs. c. (by weight.) The starch should be free from extraneous matter, and the water always distilled; rain water will not answer, as it frequently contains nitric acid, and this would injure the preparation. The iodide of potassium should be dissolved in the water; the pulverized starch added to the solution, and the, mixture placed in a porcelain vessel, held over a "slow fire." Stir the whole, with a glass rod, and when it gelatinizes, set it aside until it is cold. This paste is then spread on white paper, which, when it is dry, is cut into slips, two inches long and half an inch wide. In spreading the paste on the paper, it is best to use a wooden knife, as metal may contain some impurity that would injure the preparation. These papers should then be carefully placed away, and not roughly handled, for the paste scales off and carries with it the iodide of potassium. Bibulous paper was first used, but Berzelius pointed out its constant imperfections, and white glazed paper has been substituted. Chlorine (or other bleaching agent) gives to the test paper a slightly red tint, from the chemical reäctions caused in the iodide of potassium. There are other objections to the use of paper for the ozonoscope, and most observers have in a great measure abandoned it. In its place is used a material which fully accomplishes all that could be desired. This is cotton muslin; and when properly prepared, there can be no difficulty attending its use. Ordinary bleached muslin, of the best description, should be obtained, and carefully washed and rewashed in hot distilled water, to remove any chlorine or lime that may be present. It is then torn into pieces, about three inches wide, and of length corresponding to the original width of the muslin. Steep these pieces, for twelve hours, in a solution of the iodide of potassium and water, one grain of the iodide of potassium to one hundred grains (by weight) of distilled water. When fully dried, spread with a wooden knife upon one side of the cloth, the mixture of the iodide of potassium (one grain,) starch (ten grains,) and distilled water (by weight one hundred grains.) When this mixture has nearly dried, let the pieces of cloth be carefully "ironed," on the sides unprepared. They may then be cut into slips, one inch in width, and carefully placed in glass bottles for use.

At the Leeds meeting of the British Association, in 1858, Dr. Lankester exhibited his instrument for the convenient disposition of the ozonoscopic cloth and for registering, hourly, the amount of atmospheric ozone; it is so exceedingly simple, yet efficient, that most observers have adopted it. This instrument moves like a clock; and on a shaft, in direct connection with the machinery, is wound the ozonoscopic cloth. The instrument in its action unwinds a given length of cloth during every hour, and this piece, so unwound, is kept constantly exposed to the atmosphere. By a convenient and compensating arrangement, another shaft, also in connection with the instrument, winds up this cloth as it is unwound from the first shaft. The cloth, as it slowly passes from one shaft to the other, is made to move before an aperture in the side of the box, and is there exposed to the atmosphere. The cloth should be kept damp during its exposure. Some very simple method will answer; a piece of soft cotton thread, or cord, with one end resting in a vessel of distilled water and the other placed in contact with the ozonoscopic cloth, so that by capillary action, the water will pass from the vessel to the cloth—or any other method that the most ordinary ingenuity would suggest. A common clock will answer the purpose of Dr. Lankester's apparatus, and is always easily attainable. It will only be necessary to have added some shaft, which, by being placed in connection with the machinery, will wind up the cloth as it is unwound from any selected shaft of the clock. The hours and half hours should be marked, on the unprepared side of the cloth, in ink, and in this way it will be easy to tell, not only the degrees of ozone existing at a given time, but the exact hour or fraction of an hour at which each degree was thus registered. If one inch of cloth be exposed every hour, a division of the cloth into inches and half inches will afford a perfect index of time. Whether the cloth be cut into slips, or used in entire pieces, it should always be dampened at the time that it is compared with the ozonometer, for determining the number expressive of the chromatic shade generated. There is nothing in the atmosphere that will colour this cloth but ozone. Oxygen, whether dry, damp, or heated, produces no change in it; chlorine does not exist in the air; iodine, though claimed to be occasionally present, is proved never thus to appear in an atmosphere in its normal condition; so that when this cloth is changed it must be by ozone only, and the degree of the change marks accurately the quantity of ozone present. Iodine must be in its free state to give the blue test with a cold solution of starch, and the liberation of iodine (when the iodide of potassium is used) is usually accomplished by adding a few drops of acid or chlorine water to the mixture. When the ozonoscope is used, ozone plays the part of an acid; it unites with the potassium, converting this into potassa, whilst the liberated iodine unites with the starch, forming the blue iodide of fecula. The depth of this blue will depend upon the quantity of iodine liberated, or in other words, upon the quantity of ozone present.

Dr. Charles Smallwood (Professor of Meteorology in the University of McGill College, Montreal, Canada East) has instituted and published a series of beautiful experiments, serving to show the effect of different coloured light upon the ozonoscope. "By exposing the ozonoscopes under different coloured glasses, and also to the action of polarized light, the following were the results. The expression 1.00 being for saturation gives the ratio when exposed, to

Direct light	.73	Orange light	.55
Polarized light	.64	Purple light	.51
White light	.57	Blue light	.45
Red light	.58	Green light	.41

"The following very valuable table of the properties of direct light, through coloured media, is given for the sake of comparison:

Medium.	Light.	Heat.	Chemical Action.
White	7	7	7
Red	4	5	6
Orange	6	6	4
Purple	3	4	6
Blue	4	3	6
Green	5	2	3

As the whole sunbeam consists of luminous rays, heating rays and chemical or actinic rays, light therefore, passing through the coloured media given, becomes relatively deprived of one or more of these properties. In submitting the ozonoscopes to these coloured rays, it is shown that light passing through a green medium prevents the formation of ozone, in the proportion of 41 to 73. Polarized light would seem to possess the least influence on the development of ozone; it gives the proportion of 64 to 73. Next comes white light, then red, orange, purple, blue and green. Green, it may be remembered, possesses but half the chemical or actinic action of red, purple and blue. Orange, which possesses the greatest amount of luminous and heat rays, gave ozone in the proportion of 55 to 73." Dr. Smallwood mentions that the ozonoscopes placed, during the prevalence of the "potato rot," between the rows of the diseased plant, were much more deeply coloured than those placed in the usual position. His ozonoscopes, placed among vegetables and flowers, gave no very decided results, but he did not use the glass bell receiver during these experiments. It is manifest that ozone may be given off from vegetation in the most abundant manner, but unless this gas be confined in a jar or receiver, it does not become sufficiently concentrated to produce decided effects upon the ozonoscope.

Dr. Smallwood has been long engaged in the study of ozone, and his views are at all times instructive and interesting. In a very able paper, read before the American Association for the Advancement of Science, held at Montreal, he, with many others, took the ground "that a moist and humid atmosphere was necessary to the development of ozone." This, it will be observed, is also in direct antagonism to the claims of those who assert that ozone is abundantly generated in the electrization of pure and dry oxygen.—Before dismissing the subject of the ozonoscope, it will be proper to mention the different tests which may be used for demonstrating the presence of ozone.

The ozonoscope, saturated with a weak solution of sulphate of manganese, becomes brown when exposed to ozonized air. Spirituous tincture of guaiacum is turned blue by ozone. Sulphide of lead is whitened by it. Sulphate of indigo in solution is bleached by it. Silver foil, in an atmosphere of concentrated ozone, is changed to peroxide and crumbles to pieces. An alkaline solution of lead has a precipitate of peroxide formed, when submitted to the action of ozone. By it all the preparations of protoxide of manganese are changed to peroxides. Sulphurets of lead, copper, iron and antimony are converted by it into sulphates. Arago and Schönbein frequently used plates of platinum as tests; when ozone is present, they become negatively polarized. Bouchotte has used a novel and beautiful method of estimating the quantity of ozone in the atmosphere. Observing that silver or copper was rapidly oxidized by ozone, he placed a thin sheet of copper on acidulated water; the ozone of the atmosphere oxidizes it, and, with the acidulated water, transforms it into an acetate of copper; this is taken into solution; the liquid is then evaporated, and the salt of copper, being weighed, gives the ratio of ozone present. It is evident, however, that all of these cursorily mentioned tests are more curious than useful, and are of not a sufficiently practical character for the accomplishment of any prompt or decided result. The iodide of potassium is the only test upon which we can rely, and it is always efficient, whether in the most delicate or extended series of experiments.

With the preparation of the ozonoscope, it became essential that some method should be adopted for permanently registering the shade of the ozonoscope after each experiment; or that some scale should be adopted, each degree of which would represent a certain shade of the ozonoscope after immediate use; this shade soon changing after the experiment is completed. It is also necessary that such an instrument should be accurate and uniform, as upon its résults all the calculations and deductions, relative to hygiene and meteorology, are based. An instrument for this purpose was in time suggested, and, although radically defective and totally imperfect, was the only one used by most observers. This instrument is called an ozonometer. It is formed by dividing into ten (10) shades or degrees, the chromatic interval existing between the entire absence of ozone, which is registered as white, and the deepest blue which ozone can possibly produce, by the decomposition of the iodide of potassium, in the presence of starch. This ozonometric scale extends from zero, which indicates the total absence of ozone, to ten (10) which represents the deepest shade of blue resulting from the decomposition occurring in the chemical constituents of the ozonoscope. We have thus ten (10) degrees or shades on the face of the ozonometer. It will readily be perceived how extremely imperfect and objectionable this instrument must be. The division of the chromatic interval, from white to deep blue, is made arbitrarily, and this is but saying that such a division must be always variable and exceedingly inexact. It is manifest, that when no scientific rule has ever been suggested for the accurate and uniform division of this chromatic interval; that when each observer, experienced and inexperienced, scientific and superficial, is left to his own judgment and chromatic discrimination, the shades representing the different degrees of their instruments must vary indefinitely and interminably. It is difficult to imagine even, how a more ingenious method could be suggested for producing constant discrepancy and confusion ; how greater error and fallacy could be created, than by this rude and reckless method of registering the most delicate of chemical reäctions. Few persons, in actual conference, can agree as to the exact difference which, in two chromatic shades, should constitute a degree. How utterly impossible, then, does this become, when, for two persons, we have hundreds, and these not in actual conference, not even in correspondence with each other, but separated by thousands of miles, and in reference to each other totally isolated ; where the subject of error and confusion is not between two shades only, but ten, how, under such circumstances, can there be harmony ? how even comparative uniformity ? And if these be absent, of what practical use is this instrument, for the elucidation of the problems occurring ? What would be the result, if thousands were investigating the subject of heat, each using thermometers not known to be constructed on different scales, but supposed to be exactly similar ; yet not corresponding in a single degree.

A defect in the ozonometer, now used, would of course make but little difference with the individual observer, as it is evident that his maximum and minimum would have reference to but a single locality ; that the real errors would compensate each other in deducing a mean ; and that his instrument, however differing from those used by others, would at least give him a fair exposition of the atmospheric changes occurring around himself. But when these instruments, so differing with each other, yet assumed to be similar, are used by all observers, there can possibly be nothing but discrepancy in general results ; errors and antagonisms in deduction. These constant and still existing defects must embarrass every observer, and vitiate the entire results ; though they do not in any way interfere with experiments made in reference to a single locality. If cholera marks the absence of ozone in Paris and Berlin, as noticed by competent authority in these Cities, the deduction is clear and satisfactory, though the instruments used may be dissimilar. But if in Paris it is declared that influenza becomes epidemic whilst the ozonometric record is 3, when it is only epidemic in Berlin at 1, it does not prove that the same atmospheres do not give the same pathologic results, but, to those familiar with existing difficulties, that the ozonometers used differ perhaps and almost certainly two degrees in their scale ; and that the atmospheric effects are identical.

There has been always more or less discrepancy, when many observers have compared or published their ozonometric records, with a view to some decided deduction, or for the establishment of some law attending certain ozonic phenomena. Whilst difficulties of this kind have almost invariably characterized attempts at deductions, based on aggregate records, there has seldom been any trouble with any individual observer. It has been found, for instance, that a certain disease has manifested itself repeatedly at a certain place, as a coincidence with some ozonometric number, when, to the confusion of those interested, the same disease has prevailed at another locality when the condition of the atmosphere, as interpreted by the ozonometer, was entirely or conspicuously different. Here, as is manifest, the sole cause of the difficulty was not in atmospheric difference, but in instrumental imperfection and discrepancy. The ozonic statistics and records abound in instances of this kind. The published tables of Bœckel, Sr., Wolf, Simonin, Sr., Billiard and others, are instances of these perplexities. The number of one ozonometer that represents average health, may in another indicate the incipient appearance of disease. This has occurred. Although the discrepancies thus mentioned have not been very great, yet they have been the cause of much disappointment and confusion. The conviction, in this respect, now is, that these discrepancies are not in atmospheric peculiarities, but the results of dissimilarity in the instruments used. Although this difficulty has been universally felt and regretted, yet, so far, nothing whatever has been done to remove it.

After repeated experiments and many failures, we have perfected an ozonometer, to be now described, which fulfils every purpose desired.

(TO BE CONTINUED.)

CLINICAL LECTURES.

Clinical Notes of Cases Treated in Different Hospitals of the Late Confederate States. By James M. Holloway, M. D., Louisville, Ky. [From private Case-Book.]

Case 6.—C. S. Chimborazo Hospital, Division 2, Richmond, Va. A. J. D., Sergeant, 31st North Carolina Regiment, Co. F, aged 25 years; general health good; six feet high, and well-developed; wounded May 16, 1864, at the battle of Drewry's Bluff, V. S. (minie) upper-third left thigh, ball entering near the attachment of the tensor vaginæ femoris to the fascia lata; was extracted behind, at a point opposite. Saw the patient for the first time on the morning of the 23d of May; discharge from wounds scanty, ichorous and very offensive; frequent rigours, followed by flushes of fever, and then profuse sweating; dull and vacant expression of countenance; rational when fully roused; sleep unrefreshing, attended with muttering delirium and subsultus tendinum; symptoms of purulent absorption well marked. Ordered—Turpentine dressings to wounds; brandy ad libitum, and the most nourishing diet.

May 25th.—Symptoms not improved; muscles of left arm and leg swollen, tense and rigid; cries out upon slightest motion of, or pressure upon them; skin doughy, bathed in clammy sweat and of a dull, icteroid hue; pulse thready and quick; stimulants produce no effect.

May 27th.—Died last night of ichorrhæmia.

Case 7.—C. S. Chimborazo Hospital, Div. 2.—T. A. G., Lieut., 18th Va. Reg., Co. H., farmer, general health good, aged 29 years, 5 feet, 10 inches high, and well developed; wounded May 16, 1864, V. S. right thigh, upper-third, (minie ball unextracted,) ball entering on anterior aspect on a line with trochanter major ranged downwards and backwards. Saw the patient for the first time May 23d.—Symptoms local and constitutional, almost identical with the above case, excepting the absence of muscular rigidity of left arm and leg and the presence of involuntary stools; wound bleeds profusely upon least irritation. Treatment—Turpentine dressings to wound; brandy, in large quantities, and nourishing diet.

May 28th.—Died last night of ichorrhæmia; extremities growing cold twenty-four hours before death.

Case 8.—C. S. Chimborazo Hospital, Div. 2.—W. J. C., Corporal, 18th Va. Reg., Co. K, farmer, general health good, aged 30 years, 5 feet, 8 inches high, spare muscular development; wounded May 16, 1864, at Drewry's Bluff, V. S. (minie) ball entering left thigh at gluteo-femoral crease, passed through and lodged under skin about one inch below Poupart's ligament, and internal to femoral vessels, from whence it was extracted two days afterwards. The foot was everted and the slightest motion of the limb caused severe pain, which led me to suspect fracture of the neck of the femur; subsequent examinations, however, did not confirm the suspicion. Saw the patient for the first time May 23, 1864. General condition almost identical with the two foregoing cases, though the symptoms were not so violent. Constant severe pain throughout the limb; scanty discharge, icteroid hue; tongue dry and coated; collection of sordes on teeth, &c. Treatment—Turpentine dressings; stimulants; nutritious diet, and to take thirty drops of turpentine in mucilage every two hours.

May 27th.—General condition greatly improved; rational; discharge of pus scanty, but more laudable; tongue moist and cleaning off; appetite good; complains still of great pain upon motion of limb; continue treatment.

May 30th.—Attacked with nervous tremors this morning (has had previous attacks); relieved promptly by stimulants and antispasmodics. Wound in groin discharging freely; lymphatics indurated; foot still everted; motion of limb not so painful.

May 31st.—General symptoms better; changed his bedding and rendered him more comfortable by elevating the limb on pillows. Continue treatment.

June 3d.—Pulse feeble and more frequent; debilitated by increased discharge of pus; pain in limb subsided. Ordered, Tr. Ferri. Perchlorid, before meals; continue nutritious diet and stimulants.

June 5th.—Had slight hæmorrhage last night, caused by a sudden movement during an attack of nightmare; bled again this afternoon; strictly venous; upon examination discovered distinct fluctuation in groin, the blue cast of integument over sac indicating a collection of blood. Incised sac freely; removed clots and filled cavity with lint and persulphate of iron in powder. Suffers from constant pain in knee, inducing belief that coxo-femoral joint is involved.

June 7th.—Venous hæmorrhage recurred at 1 P. M. to-day; upon removing dressings and making pressure in iliac fossa, a quantity of dark, grumous blood escaped, followed by a small amount of pus. The sac was emptied entirely, and he was removed to a clean bed; after which, pain in knee subsided, and a refreshing sleep was secured. Pulse remarkably good; mind lucid and cheerful.

June 10th.—Bed and linen changed daily without causing pain; both wounds discharging freely; appetite unimpaired; sleep tranquil and refreshing; turned on his right side for a short time every day.

June 13th.—Convalescing slowly and steadily; character of discharge more healthy and diminished in quantity; no further hæmorrhage; partaking freely of vegetable diet and berries.

June 15th.—Has been imprudent in diet; rested badly last night; pulse more frequent and irritable; a copious discharge of pus flowed from posterior wound this morning; pain in knee returned; severe upon slightest motion; discontinued vegetable diet, and ordered anodynes.

June 18th.—Bowels rather active; discharge of pus copious; sleep less disturbed; appetite restored; turned upon his side to relieve bed-sore over sacrum.

June 20th.—His condition has improved since last note, and he was placed upon a litter and transferred to the country to-day, with the hope that change of air, more comfortable quarters and a home diet would increase his chances for recovery. Two weeks afterwards, I was informed that the patient reached home without injury and was improving gradually, until the appearance of a raiding party of the opposing forces induced a high state of mental excitement, followed by fever, under which he rapidly succumbed.

[The disease being in progress when I took charge of the ward, I am unable to state positively the exact time at which these cases were attacked with pyæmia or ichorræmia. The medical gentleman who turned them over to me did not notice any well marked symptoms of the disease at the time of his visit on the previous morning. It is probable then, that the disease supervened within the twenty-four hours previous to my first visit. The rapidity of its progress fully accords with my observation of other cases similarly attacked. Cases 6 and 7 occupied the same ward; they were removed to tents on the 24th. Two more cases of pyæmia occurred in that ward during the subsequent two months. Fully 800 cubic feet were allotted to each patient; ventilation was free. Case 8 occupied an adjacent ward; he was not transferred to a tent because of the severe pain produced by the least motion; after convalescence it was not deemed necessary to make the transfer. One other case of pyæmia originated in that ward during the subsequent two months. Another was admitted with the disease under the impression that it was a case of hectic fever. The three cases present other points of interest; they were wounded on the same day; near the same part of the body; with similar missiles (minie balls); and the supervention of pyæmia must have occurred about the same time; a general description of the symptoms in either case would answer for the other two.]

Case 9.—C. S. Chimborazo Hospital, Div. 2.—G. G. W., Private, 31st North Carolina Regiment, Co. F, farmer, aged 25 years, health good, except a slight "bilious" attack; wounded by minie ball May 16, 1864, at 5 A. M.; submitted to excision of four inches of middle third of shaft of right humerus, seven hours afterwards. No points of special interest were observed in this case until the 7th of June, twenty-two days after receipt of injury and performance of the operation. At that date the wounds and vertical incision had closed by granulation, and there was only one point discharging, situated at lower edge of incision directly over end of lower fragment of bone. Postērior and internal lateral splints to fix and support the limb having been applied, the patient was allowed to take gentle exercise in the open air. His appetite was good; rested well at night without anodynes, and his condition, in every respect, was deemed favourable.

June 7th.—Was seized with severe rigour at 3 P. M., followed by high fever. Prescribed Calomel 2 grs., Pulv. Rhei grs. 15.; take at once; to be followed by five grains of quinine every three hours.

June 8th.—Another severe chill at midnight. 6 p. m.—Pulse frequent and sweating; bowels freely moved; wounds doing well; slight discharge of healthy pus from lower edge of incision; continue quinine, five grains every three hours; whiskey and soup.

June 10th.—No abatement of symptoms; passed restless night, with frequent rigours; pulse frequent and irritable; bowels acting freely; discontinue quinine; continue whiskey, ice, generous diet and careful dressings. Discharge from wound healthy and slight.

June 11th.—Extremities cold; anxious countenance; intellect clouded; pulse feeble and undeveloped; ordered quinine in three grain doses, which was ejected; administered twenty grains by enema—to be repeated in four hours; continue whiskey and nourishment. Evening.—Rallied somewhat during the day; extremities becoming warmer; discharge from wound healthy and slight.

June 13th.—Rigours continue at irregular intervals, followed by flushes of fever and profuse sweats; complains of his throat; voice husky; pulse feeble; anxious countenance; extreme restlessness; delirium and anorexia. Quinine discontinued; ordered carbonate of ammonia and milk punch. Discharge from wound healthy and slight.

June 14th.—Patient died at 5 p. m., seven days and two hours after first chill, and twenty-nine days and twelve hours after receipt of injury. Autopsy fourteen hours after death.

The condition of the injured limb, only, was examined; cicatrix of vertical incision was laid open, and found to be healthy and firm. The lower fragment of bone was first exposed; surrounding tissues healthy, and repair had progressed favourably; periosteum entire; end of bone completely covered by what seemed to be fibrous tissue, interlaced and running transverely and obliquely; it could be easily dissected up and displayed; was entirely distinct from surrounding tissues, and presented a beautiful net-work, forming a complete cap for the end of the bone; medullary cavity healthy; the lower fragment was about three and a half inches in length, including the condyles. Extending the dissection upwards, by laying open the cicatrix through its entire extent, a cavity was opened, from which about one and a half ounces of dark, grumous, fœtid pus escaped. The end of upper fragment of bone presented at superior border of cavity; medullary cavity diseased, and filled with putrid matter; end of bone denuded and carious; periosteum unhealthy and easily dissected up on posterior and external lateral surfaces; a notch was observed near end of bone, caused by slipping of the saw during its section; surrounding tissues unhealthy and disorganized.

The patient never complained of pain at any particular part of the body, nor was there, at any time, any evidences of the existence of this unhealthy collection.

Case 10.—C. S. Chimborazo Hospital, Div. 1.—[This case came under the observation of Surgeon Browne, of Accomac County, Va., who kindly furnished me the following notes]:—E. G., private, 21st Va. Reg., Co. B, V. S. fracturing and comminuting ankle-joint, received May 16, 1864, at Drewry's Bluff. Intense inflammation occurred, resulting in gangrene, and requiring amputation of thigh in lower third, on the 23d of May. Case progressed favourably until June 10th, the stump having almost healed. On that day was seized with a chill, followed by fever; then another rigor, &c., &c. Patient died on the 14th, with well marked symptoms of pyæmia. Autopsy revealed a sac as large as a hen's egg, three inches above end of the bone and close to shaft. The periosteum was stripped from the bone at that point, and could be easily dissected up. Stumps otherwise perfectly healthy.

ORIGINAL CORRESPONDENCE.

LONDON, July 1866.

The subject of cerebral embolism is not without interest, as furnishing an instance of the extension of our pathological knowledge of late years. Indeed, patient observation of morbid appearances, seems to have been the most fruitful field of Medical research, for many years past; as witness the discovery of the intestinal affection in typhoid fever; of the disorganization of the supra-renal bodies in Addison's disease; the distinction of the various diseases of the kidney, formerly included under the common term "Bright's disease," or albuminuria. To return, however, to embolism: in some cases, which, during life presented, for the most part, the symptoms of apoplexy, and which were diagnosed as cases of that disease, there has been found, after death, no hæmorrhage into the brain or meninges, but a small plug, or embolus, in one of the cerebral arteries, perhaps most commonly in the middle cerebral artery, or in one of its primary branches, often just at the point of division. This plugging of a cerebral artery leads to inflammatory softening of the parts supplied by the artery. The effect is not simply that of deprivation of blood supply, for by collateral channels, a considerable quantity of blood soon reaches the part; but the blood so supplied, by means of many small anastomoses, is not impelled by a sufficient vis a tergo to ensure its being rapidly carried off by the veins. The circulation, in consequence, becomes very sluggish—the blood almost stagnating—and a low form of inflammation is set up, the part becoming at first redder than usual; then, if the case is prolonged, undergoing yellowish discolouration, and becoming soft and pulpy, and exhibiting, under the microscope, numbers of those "compound granule corpuscles," which are so characteristic of inflammatory softening of nervous structures.

This form of disease appears to have been first observed in cases of heart disease, with vegetations on some of the cardiac valves, and it was naturally supposed that the plugging of the cerebral artery is the result of the detachment of a small piece of fibrin from one of the valves of the heart; this piece of fibrin being carried through the aorta into one of the carotids, and driven along by the stream of blood, through the internal carotid and its most direct branch, the middle cerebral, till it reaches a portion of artery, the calibre of which is not sufficient to allow of its passage any farther. But, in certain cases, cerebral embolism occurs where there are no vegetations on the cardiac valves, or indeed any apparent source whence the fibrin could have been detached. Hence some pathologists have come to the conclusion that these masses of fibrin are not carried onwards from the heart, but are the result of disease at the seat of the plugging in the cerebral artery itself. It appears to me more reasonable to believe in both: that there are certain cases where emboli are carried onwards from the heart to a distant artery, and that there are, on the other hand, cases where, from disease of an artery at a particular spot, fibrin collects in it until its canal is obstructed. That this latter form of the disease sometimes occurs is further evidenced by the fact that, the fibrin is in some cases firmly adherent to the arterial wall at the seat of mischief; the arterial wall, moreover, exhibiting some trace of disease, as atheromatous thickening, at the same spot. In one case of death, from extensive cerebral softening, (inflammatory) I recollect seeing nearly the whole of the arteries at the base of the brain in a state of atheromatous degeneration, and some of them completely plugged, others partly so, by fibrin adhering to their roughened internal surfaces.

Some cases of disease of the cerebral arteries appear to be the result of secondary syphilis. The following is a brief outline of a case in point:—

A carpenter, æt. 27, was admitted into hospital, having been ill five days. He was seized in the morning, suddenly, with paralysis of the right arm and leg; and on attempting to walk he fell down, but had no fit. Was quite well before. When admitted, there was some power in the leg, but the right arm was almost entirely paralysed as to motion. His speech was somewhat impeded, but there was no perceptible drawing of the mouth, or other evidence of facial paralysis. He complained of giddiness in the head. There were slight traces of eruption on the face. He said he had had syphilis about four years ago, and secondary eruptions at intervals, ever since. Has been a temperate man. He continued in much the same state for about a fortnight, but after that the cerebral symptoms became more decided; delirium set in, and finally coma, and he died on the 27th day of his admission.

At the post-mortem examination, there was found a pale mass of fibrin obstructing one of the primary branches of the left middle cerebral artery, entirely blocking up the artery, and firmly adherent at one spot to its wall. The arteries elsewhere appeared healthy. There was a well defined patch of advanced inflammatory softening in the left corpus striatum, and the corresponding part of the middle lobe of the left cerebral hemisphere was somewhat discoloured at the junction of the grey and white portions, and was found, under the microscope, to exhibit evidence of the same process of inflammatory softening, but less advanced than in the corpus striatum. The heart was not diseased.

Here the evidence is all in favour of the clot having formed in the cerebral artery, where it was found; and when this is taken, with other cases, there is fair evidence that the disease, in the cerebral artery, was the consequence of syphilis.

In the following case, on the other hand, there is strong evidence in favour of the embolus having been carried forward from the heart into the brain.

A man, æt. 26, was admitted into hospital with aneurism of the femoral artery. The artery was ligatured, but secondary hæmorrhage came on about ten days after, and the external iliac artery was then tied. This arrested the bleeding, which, however, returned to a certain extent, in the femoral wound, a day or two after. Soon after, he was seized with cerebral symptoms, which, together with the loss of blood, proved rapidly fatal. After death, there was found to be disease of the aortic valves, which were partly adherent to each other, and presented vegetations, some apparently old, and others of recent date. There was a pale clot in the left ventricle, extending to the aortic valves, and adherent to the vegetations, and portions of it were loose and easily detached, in small shreds, from the rest of the mass. On examining the brain, the arteries at the base appeared healthy ; but on tracing out the branches of the middle cerebral artery, on the right side, the distal extremity of one of them was found plugged with firm pale, slightly adherent fibrin. The parts supplied from this branch, were the convolutions of the aorta and lower part of the right middle lobe of the cerebrum. The grey matter of these portions, was of a bright red colour, and very soft and pulpy, and this softened condition extended to the outer part of the corpus striatum. On microscopic examination, the softened gray matter was found to have a very granular appearance, the nerve tubules being broken down, and the nerve cells granular-looking, with irregular aggregations of minute oil-globules. There were no well formed inflammatory corpuscles to be seen, the case having probably been too rapid to admit of their formation. In this case there were also masses of fibrin (probably the result of emboli) in the spleen and in the left kidney.

Here there was cardiac disease of the kind most likely to favour the detachment of an embolus, and this seems the most probable explanation of the case. The whole subject, however, requires further observation and elucidation, and especially with reference to the relations existing between cerebral embolism, and the so-called pulmonary apoplexy, also other collections of fibrin, not infrequently met with in other viscera, especially the spleen and kidneys.

Cholera has now appeared in earnest, in London, in a virulent form. Previously to the outbreak, we have had an unusually long period of dry, hot weather, the heat having been quite tropical on some occasions. The first cases were only observed a little more than a fortnight ago, and the returns for the week ending July 21st, ascribe 346 deaths to the disease. Most of these have been in the East of London, and the London Hospital—an east-end hospital, situated in Whitechapel, in the midst of a crowded population, near to the dock, has admitted a large number of cases, and set apart wards for their reception. On paying a visit to the cholera wards there, three days ago, I was told they had admitted about a hundred cases of well marked cholera, of whom forty had died, and many others were in a very precarious state. Several of the patients I saw there, were in a state of complete collapse, some evidently dying. The duration, in many cases, has not been more than ten or eleven hours, and in some there has been no evidence, whatever, to be obtained of premonitory diarrhœa. Most of the cases recovering from collapse have hitherto succumbed to secondary symptoms—congestion of the lungs, with entire suppression of urine, and uræmic poisoning. Different methods of treatment have been adopted, but very little confidence appeared to prevail as to the success of any of them. A combination of sulphuric acid, with ætherial stimulants and astringents, appears to have been much used both in the diarrhœa and in the subsequent stage of collapse. Warm baths appear very useful when there is incomplete collapse, or in recovery from collapse. Many practitioners place great faith in dilute sulphuric acid, as an astringent in most cases of diarrhœa. Other hospitals besides the "London," have had a few cases, but as yet the great bulk of the cases are in the East of London. The type of disease seems very severe, and no doubt it will spread before long throughout the metropolis. It is proposed to organize a system of house-to-house visitation of the parishes by a staff of visitors under medical supervision, to inquire into all sanitary defects and neglected cases of choleraic diarrhœa. The port of Southampton has also been visited by the epidemic, in a far severer form than the outbreak of last Autumn.

Another distinguished member of the Medical Profession here has recently had a Baronetcy conferred on him by Her Majesty. The name of Thomas Watson must be almost as familiar in America as in England, as the author of a most admirably written book on the "Theory and Practice of Physic." He is further known here as a most able and accomplished Physician, and is universally respected.

Paris, July, 1866.

The cholera, which had slumbered through the Winter months, makes its appearance with the return of Summer, and several Cities in France are at present under the influence of the epidemic. Nantes and its neighborhood, Amiens and the vicinity of Lille, are the localities which have been the most severely tried. The last ad-vices mention the fact of there being some cases in Marseilles, and fears have been entertained for Bordeaux. Your readers have doubtless heard of the visit paid by the Empress to the sufferers at Amiens. The benevolent circumstances attending this event, and the kind solicitude displayed had seemed to lessen the mortality, by raising the depressed spirits of the inhabitants, but lately the number of deaths has again increased. The disease appeared in May among the pilgrims, on their return from Mecca. In the City of Tiberias in Palestine, and in Smyrna, a few sporadic cases have been observed, and the report is that Alexandria was similarly affected. This year the disease seems to be travelling along two lines of communication, as was the case, when it first made its appearance in Europe, and it again enters Russia by Upper Asia and Persia, whilst at the same time, it is extending its ravages Westwardly by the more direct and frequently travelled route afforded by the Mediterranean. Holland, various portions of Germany, and in particular Berlin, form, as it were, stopping places to mark distinctly, the passage of the scourge. Having in view the steady approaches of the destroyer, and mindful of the lessons of the past, as well as the result of recent experience, the Minister of Commerce charged the Sanitary Committee with the duty of reviewing, and if necessary, changing certain quarantine regulations concerning cholera.

Professor Tardieu's report of the deliberations having been made public, I will briefly mention its principal features. In 1852, it was decided that travellers, coming from an infected port might, if circumstances warranted the fact, be subject to a period of probation, lasting five days. As this time included the passage, it frequently happened that the quarantine was a mere form, and became reduced to little or nothing in reality. Owing to the evident futility of such measures, the Minister proposed that persons coming from a contaminated locality, should be compelled to undergo observation for a period, varying from three to seven days, dating from the time of arrival, and that this rule should be enforced, even if, during the journey the passengers had been exempt from cholera. Owing to the facilities for travelling by land, quarantine regulations can only be enforced in sea ports, and M. Tardieu congratulates the authorities upon the fact, that at Marseilles last year, not a single case could be traced to the arrival of any particular ship, and that among the persons confined in the lazaretto, not one was attacked with the malady. So many causes combine in the propagation, etc., of diseases, that it occasionally becomes indispensable to revise certain rules, which, though without doubt useful at the moment of their adoption, at a later day require to be replaced by others. Cholera evidently journeys along with bodies of men, follows the lines of communication, and travels with the rapidity of that communication, as Dr. Graves observes of the cholera of 1834-'5, which crossed from Great Britain to Canada in a few weeks, whilst it required six months to extend from Oporto to Lisbon.

To justify the extension of the time of quarantine, M. Tardieu says that the ship itself constitutes a floating focus of the disorders, and that its inhabitants cannot be held to have left the vitiated atmosphere, so long as they remain within the precincts of the vessel. Whether this theory be correct or not, the counsels of prudence will be better served by making the period of seclusion date from the moment of arrival, and by not including, within its limits, the time spent during the passage. It is proposed that the ship should be cleared on reaching port, and that the quarantine should be reckoned from the moment the passengers land. It is estimated that seven days cover a very long incubation of cholera, that is, if after a week passed on land, no case of the disease is noticed, there does not exist a sufficient reason to prolong this annoyance experienced by travellers. As certain vessels may be placed in exceptional conditions of health, it is understood that seven days quarantine will not be exacted in every case, owing to the injury to commercial relations, etc. Merchandise and articles of baggage, are to be subject to the customary purifications. The measures advocated, in the report of the Sanitary Committee, met the approbation of the Emperor, formed the subject of a decree, and will henceforth meet with their application.

In this City, we are also threatened with a return of the epidemic, as during the past week there have been several cases of cholera admitted into the hospitals. There have been some deaths, but as yet, it would be premature to predict the probable duration and violence of the disease, though an unfavourable augury might be drawn from what one of the Physicians of the Hotel Dieu told me: from the 17th to the 18th, twenty-six cases of cholera were admitted into the Hotel Dieu, and of this number, twenty-three patients died in the twenty-four hours following their admission, one bed having had as many as three occupants within that lapse of time. At the hospital St. Louis, there were fifteen deaths on the 17th; at the Charité, five deaths on the 18th, and Necker, St. Antoine, Lariboisiére, present a mortality in keeping with the above figures. There have also been a considerable number of cases in private practice. From the 20th to the 21st, there were eighteen admissions at the Charité, and the hospitals Beaujou and Cochin, are reported as having felt the general pernicious influence. The cholera patients are placed in wards devoted to their exclusive use with the double design of lessening the mortality, and of diverting from that channel, the thoughts of the other inmates of the institution. It may not be ill placed to remark here, that in Paris there are no fever wards, and that cases of small-pox, typhoid fever, etc., are daily to be seen occupying beds along side of consumptive and other sufferers. The separation of the cholera patients can, however, be productive of no good effect, if the disease be really contagious, for in the hospitals, though special wards be assigned to cases of this nature, yet there is constant communication between these wards and the other parts of the establishment, and there is no distinct health service.

In my last letter I gave the result of the debate at the Society of Surgery, upon lying-in hospitals. Professor Monneret has recently published an interesting chapter on puerperality. For him, the term puerperality signifies the different modifications produced in the organism of the mother. As this influence due to the child, exists during the three periods of gestation, parturition, and lactation, he examines the puerperal affection and its maladies in each of these periods. M. Monneret justly establishes a difference between the puerperal affection, and a puerperal malady. This subject will, however, be postponed for future consideration.

THOMAS LAYTON.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Recent Advances in Ophthalmic Science. The Boylston Prize Essay for 1865. By Henry W. Williams, M. D., Ophthalmic Surgeon to the City Hospital, Boston; University Lecturer on Ophthalmic Surgery in Harvard University; Member of the American Ophthalmological Society, etc., etc. "Nimia oculi longitudo facit Myopiam"—Bœrhaave, Boston. Ticknor & Fields, 1866.

In our remarks upon the volume before us, we do not propose to be guided by a spirit of rigid criticism, as it comes to us in the form of a Review of the labors of others and claiming originality in but few particulars. Rather would we call the attention of the Profession to its merits, which we think deserving of notice, for the author, in a measure forestalls our opinion, by the admission of defects which we feel assured would not exist in an elaborate work by one who exhibits such proofs of industry in all investigations relating to his specialty; and we feel satisfied, that the reasonable hope expressed, as to the result of his labors, will not be doomed to disappointment.

Before proceeding to treat of any of the advances made in ophthalmic surgery, we are furnished with the description and history of an instrument which, above all other agents, *has* done most to facilitate the investigation of diseases of the deeper tissues of the eye. This instrument is one of the most curious and useful applications of physical science to medicine, and when we consider its simplicity of mechanism and the comparative ease of manipulating it, though our astonishment at the late date of its discovery may be increased, we cannot for a moment doubt its value, but must become advocates of its more extensive use.

After an explanation of the philosophical principle involved, the various improvements are mentioned in brief, from the rudimentary instrument of Helmholtz, who first applied the principle successfully, to the improved "Binocular Ophthalmoscope" which, like the stereoscope, possesses the advantage of presenting objects in apparent relief. In a majority of cases when the use of the ophthalmoscope is of practical value, we think this advantage is fully counterbalanced by the increased difficulty of manipulation on the part of the operators and the greater sense of fatigue and distress in the organ examined. The simpler form of concave mirror with central perforation is recommended as sufficient for the requirements of ordinary practice, whilst for ease of manipulation, it specially commends itself to beginners in this mode of investigation of disease. A brief summary of the advantages to be derived from the introduction of this instrument we give in the author's words:

"It is not claiming too much, to assert that the ophthalmoscope has done more to increase our knowledge of diseases of the eye, than had been accomplished during a century, by all other means. The practitioner is not now obliged to include a large number of deep-seated diseases of the eye under the designation "Amaurosis," to which the well-known remark of Walther was unfortunately but too apropos—'a condition where the patient sees nothing, and the doctor also—nothing.' He is relieved from many embarrassing uncertainties in diagnosis, painful to himself and more or less detrimental to his patient—and is no longer in the dark; but, in regard to the interior of the eye, can speak of what he knows and testify of what he sees. As accurate diagnosis is and must be the basis of all succeseful treatment, the oculist can already point to brilliant therapeutic triumphs over diseases hitherto deemed incurable, which have directly resulted from the knowledge acquired by means of this instrument."

With the above extract, we dismiss the subject of the ophthalmoscope, only adding that no disadvantage can result from its use, except under circumstances when the impropriety of resorting to such a mode of examination would be evident to the merest tyro in the study of ophthalmic diseases; and we trust that our remarks may lead to an increase in its employment by many members of the Profession who would doubtless have been proficients in its use had not causes operating over a large section of our country for several years past, militated against advancement in this, as in many other walks of scientific observation. Continuing the subject of physical investigation, a brief allusion is made to "lateral illumination" and the "optometer" of Von Græfe, an instrument for determining the refractive power and range of accommodation of the eye. Though correct in theory, we agree with the author when he states that the indications obtained from the employment of this instrument almost always require correction by other means.

The several series of test-types now in use is next considered, and the theory of their use explained, whilst series similar to those of Drs. Snellen and Jaeger, are given in the appendix—a very useful addition to the book.

Under the head of New Therapeutic Agents, we regret that our author only finds occasion to mention one remedy—the calabar bean,—physostigma venenosum. From a consideration of the properties of this agent and the limited experience due to its recent introduction, we are induced to believe that it will prove of great practical value in the treatment of mydriasis and some other forms of disease, which have hitherto proved but slightly amenable to other treatment.

The succeeding articles relate to special operations, designed by distinguished gentlemen now engaged in the practice of ophthalmic surgery, but we will only allude to that of iridectomy, or removal of a segment of the iris, as applied by Von Græfe to the relief of Glaucoma. Our author congratulates the distinguished Professor on his "happy future" in this discovery, and whilst enjoying the pleasant picture of such favorable results from an operation, requiring but a few days' confinement, we can but admire the behaviour of the delicate iris which seems to resent no amount of rough treatment, provided it is undergone in this, or a preliminary operation for cataract. The older writers are always urgent in their precautions against the *bruising* of the iris by the lens in its outward passage in the flap operation. Have they attached too much importance to the dangers from this accident? Perhaps we are skeptical—but our observations at the headquarters of ophthalmic science, however, in the old world, are of *ante-bellum* date; and we have the doubtful satisfaction of knowing, that a writer in the *British and Foreign Medico-Chirurgical Review*, no longer ago than January 1866, insinuates, that at least on the subject of cataract in this connection, the English and German ophthalmologists were at "sixes and sevens."

Regarding the etiology of Glaucoma, the theory of Prof. Donders is accepted as the best thus far presented, and we have no objection to its reception, as a matter of faith in the doctrines of one so high in position, and by it, we explain some of the results of operative procedure.

Under the subject of Cataract, we have something positive in descriptions of the various improved operations, "out-scooping," "suction," etc., with an expression of opinion as to the advantages of each.

From the author's description of the operation by suction, as performed by himself, we consider that he has made a decided improvement on the instruments of Mr. Teale, who first proposed it. It is—whilst treating of this subject, that the author brings forward a claim to originality, as having been the first to resort to the use of sutures of the cornea, after extraction by flap operation, accompanied by a description of the various steps in the procedure. As far as we know, there is no one to contest his claims to originality, but we have doubts as to the general adoption of the method, notwithstanding the assertion that sutures have remained in situ seven weeks without causing inconvenience. We omit the description of various other operations and the enumeration of the evidences of disease, as revealed by the ophthalmoscope, to consider what we imagine will prove to general readers, a most interesting part of the book.

To Professor Donders belongs the credit of having done most to advance to a satisfactory development, the various theories regarding refraction and accommodation, and the result of his labours is partially announced in the following extract:

"After many years of almost fruitless speculation upon the theory of accommodation, it is now proved, by mathematical demonstration, that this important function has its seat in the crystalline lens, and that it is exercised by means of changes in the curvature of its anterior, and in a slight degree also, of its posterior surface; which changes are effected in a manner not yet fully explained by the action of the ciliary muscle."

The method of this mathematical demonstration, due to the independent labours of Kramer and Helmholz, is given with appropriate and excellent diagrams, but as regards the action of the ciliary muscle, we are left in as much doubt, as involved the question of its existence, in the opinion of some anatomists but lately considered valuable authorities.

The result of these investigations assume a valuable and practical form in the aid which they afford us, in the selection of lenses for the correction of variations from the normal range of accommodation.

The articles on Presbyopia and Myopia are comparatively full, and furnish positive refutation of many popular ideas on these subjects, besides affording much of interest and practical value, relating to the cause and treatment of both affections.

Under the term astigmatism we are introduced to an interesting series of phenomena due to abnormal refraction, caused by a want of symmetry in the curve of the cornea and, possibly, of the crystalline lens. The ingenious mechanical means resorted to for the relief of this affection is to be admired, as a triumph of optical skill, and would go to confirm our opinion of the value, to every community, of intelligent and educated opticians.

The concluding article of the work relates to the subject of Strabismus, and in it we have evidences of improvement in the pathology of the affection, with much that is of practical value as regards treatment, especially in reference to the importance of early operative procedure, of which the necessity is conclusively demonstrated.

With these remarks, we conclude the consideration of the contents of this little work, recommending it to the favorable attention of the Profession, from whom we think, thanks are due Dr. Williams for this resumé of the labors of many minds, in so important a branch of medical science. The mechanical part of the work is all that could be desired.

F. D. C.

Why Not? A Book for Every Woman. The Essay to which the American Medical Association awarded the Gold Medal for 1865. By Horatio B. Storer, M. D., of Boston, Assistant in Medical Jurisprudence and Obstetrics in Harvard University, Surgeon to the New England Hospital for Women. Issued for general circulation, by order of the American Medical Association. Boston. Lee & Shepard. 1866.

This Essay has been, since its receipt, placed aside, until an opportunity could be enjoyed for carefully reading it, and the few remarks now made are based upon a thorough examination of its pages.

The work is a very fair exposition of the subject, and furnishes, in language unfortunately not generally free from medical technology, much that is useful and necessary for the general Public to understand. The style of the author is bad; the sentences are frequently involved; the orthography exceptionable, and the meaning often obscure. As the Essay was written in competition for a Prize, to be awarded to the author "of the best popular tract, upon the subject of induced abortion," it cannot justly be subjected to the criticism of being very superficial in character, and of conveying truths well known even to the neöphytes of the Profession. Such a characteristic was inseparable from the circumstances surrounding such a composition, and the author could not judiciously have acted otherwise. These are nevertheless facts, and however novel and instructive may be the views presented to the general reader, it would assume a gross degree of professional ignorance to suppose that the information contained is applicable to the mass of Physicians. This work is confessedly intended for popular dissemination, and it is not only unquestionably commendable for such a purpose, but useful in supplying a void that has long existed, and which, to a great extent, still exists in contemporaneous literature. Physicians have long appreciated the necessity of furnishing, for popular use, such works as tend to convey those vital and important truths, which, well known to the Profession, are both novel and instructive to the general Public. In this field of literature, Dr. Storer's tract is a useful and valuable pioneer.

The author frequently alludes to his previous writings, in a manner that is (to say the least) singular, ludicrous and egotistical; in the Preface he apologizes for this, by saying that it was done "to conceal identity" and because "little other published material, as yet, exists, from which to draw upon this subject, save his own," etc. Self-eulogy is frequently an unsuccessful mode of concealing personal identity, serving very often rather to reveal it, and when an author is really compelled to rely upon his own works for authority, the majority of readers would consider it as at least more usual and graceful to have the statement emanate from others. Dr. Storer, in this connection, very naturally and properly says, that for such a course, he "throws himself upon the generous sympathy and forbearance of his readers," and this is certainly the most successful mode of escaping condemnation.

Here are a few of the examples, taken at random, in which the author modestly and gracefully refers to his literary antecedents:

"I am constrained to acknowledge my indebtedness to the various publications of the writer (Dr. Storer), from whom I have quoted, for much of the evidence I shall now present, upon the subject of forced abortions. I trust that, thus offered, it may lose none of its freshness, point and force. My frequent extracts from one who has given more thought to the subject, than probably any other person in this country, will, I am sure, need no excuse." Again, in speaking of the proneness of woman's mind to depression, at the periods of menstruation, conception, gestation, lactation, etc., the author informs us, that this is "a matter that also seems to have been more thoroughly investigated by the authority (Dr. Storer) I have so freely drawn from, in reference to the question of abortion, than by any other writer in this country," etc. There are other examples that could be cited; these, however, will be withheld, for the object of criticism is not, by unjustly aggregating defects to produce unfair conceptions on the part of the reader, but when a fault is condemned, to give such an illustration of it that the reviewer may be acquitted of the charge of captiousness or hypercriticism. Dr. Storer states that, having embodied the language quoted, in his manuscript Essay, he could not fairly change the text subsequently, but it is reasonable to suppose that the Prize Committee of the Association would not have been unjust or inexorable, if he had naturally asked permission to make this eulogy of himself more temperate and less conspicuous.

With this cursory allusion to some of the defects of this production, it is a pleasure to commend much that is usefully, forcibly, and accurately conveyed by the author. On the subject of the frequency of forced abortions, the general reader must be seriously impressed with the facts enumerated. "It was proved, for instance, that in one State, that was named, one of the wealthiest in the Union, the natural increase of the population, or the excess of the births over the deaths, has of late years been wholly by those of recent foreign origin. This was the state of things existing in 1850. Three years later, it was evident that the births in that Commonwealth, with the usual increase, had resulted in favour of foreign parents, in an increased ratio. In other words, it is found, that in so far as depends upon the American and native element, and in the absence of the existing immigration from abroad, the population of our older States, even allowing for the loss by emigration, is stationary or decreasing." This fact is calculated to startle every one, and tells a tale of crime and disgrace, that should not only overwhelm the moral sensibilities of this country, but should stimulate promptly and permanently the efficient moral agencies of investigation and publicity. That the native births of a country should not exceed its deaths is a disgraceful fact, which should justly entail upon the abortionist universal execration and infamy; should arouse the aggregate voice of the Pulpit and the Moralist, and convert every Physician into a Missionary of instruction and reformation.

"If the community were made to understand and to feel that marriage, where the parties shrink from its highest responsibilities, is nothing less than legalized prostitution, many would shrink from their present public confession of cowardly, selfish and sinful lust. If they were taught, by the speech and daily practice of their Medical attendants, that a value attaches to the unborn child, hardly increased by the accident of its birth, they would also be persuaded or compelled to a belief in its sanctity."

The author very aptly and forcibly impresses upon the mind of the general reader, that life begins with conception, and also, that impregnation and conception are identical; differing in this respect, from Meigs and others, who teach that conception is only coïncident with the attachment of the impregnated egg to the uterine cavity, or to some other tissue of the mother. With this point fully understood by those for whom this book was written, it is made clear to them, that voluntary or forced miscarriages, at any period after conception, is murder. Few women, not inbruted by a life of infamy, would desire or permit abortion to be induced after the reception of this information.

The author makes the novel statement, that abortion and infanticide are much more frequent among Protestants, than Roman Catholics; this difference being due to the influences of the Confessional and the terrors of Excommunication.

Dr. Storer very properly advises that, "in no case, should abortion be permitted, or allowed to be permitted, by the advice or approval of a single Physician; that, in all cases, where such counsel is taken, it should be from a consultation of at least two competent men," etc.

In regard to delivery, the members of the Profession are not prepared to agree with him in the propriety of inducing anæsthesia "in every case of labour," though it must be acknowledged, that there is an increasing confidence relative to the adoption of such a course.

In discussing the remedy for the forced abortions, now so surely depopulating this Country, the author appeals to all Physicians to labour and to advise, quoting the forcible language of Dr. Hodge: "Physicians alone can, in this, rectify public opinion; they alone can present the subject in such a manner, that the legislators can exercise their powers aright, in the preparation of suitable laws; that moralists and theologians can be furnished with facts, to enforce the truth upon the moral sense of the community, so that not only may the crime of infanticide be abolished, but criminal abortion properly reprehended, and that women, in every rank and condition of life, may be made sensible of the value of the fœtus, and of the high responsibility which rests upon its parents."

The author closes his essay in the following manner: "This subject, at all times so important for the consideration of the people at large is invested with unusual interest at a period, like the present, when at the close of a long and closely contested war, greater fields for human development and success are opened, than ever before. All the fruitfulness of the present generation, taxed to its utmost, can hardly fill the gaps in our population, that have, of late, been made by disease and the sword; while the great Territories of the far West, just opening to civilization, and the fertile savannahs of the South, *now disenthralled and first made habitable by freemen*, offer homes for countless millions yet unborn. Shall they be filled by our own children, or by those of aliens? This is a question that our own women must answer," etc.

It is to be regretted, that the author, in a natural allusion to the future population of this Country, should soil the pages of a Professional work, with political allusions and statements, that are essentially foolish, and which, even if true, would apply equally appropriately and equally correctly to all communities, in which these conditions of disenthrallment, etc., formed, in the past, the record of their history. It is sufficiently lamentable, that the secular Press evinces in mutual obloquy and vituperation, a prostitution in part of its mission, but that Science, which should be the synonyme of Charity and Peace, can be tempted to lower its Catholic banner, and trail it in the dust of this terrible crusade, is melancholy and incomprehensible. It is specially to be regretted that one, so personally accomplished and professionally eminent, so acceptable in all the walks of the Profession, should thus place upon his pages, with the sanction and consent of the highest representative Medical Body in America, a precedent so unworthy, and an example so discreditable.

In concluding this Review, it is impossible not to express surprise at the title selected for this Essay; a title more suggestive of the sensational and vapid literature of the day, than of a praiseworthy effort to devote the Professional pen to reforming one of the greatest and most fatal crimes of modern society.

MISCELLANEOUS.

Dr. Salisbury's Discovery of the Cause of Intermittent Fever—European Counter Claims.—Our editorial notice, some time since, of Dr. Salisbury's discovery of the cause of intermittent fever, appears to have been the means of making it known, through the *Union Médicale*, to many European readers. The article in the *Union* was soon followed, as we have already announced, by a claim of priority of discovery by Dr. Lemaire, of Paris. Curious and interesting as his researches were, we did not consider his claim fully sustained, as, although he suggested that the poisonous influence of marsh miasm might be due to an organic cause and although he had detected organic germs in the gaseous emanations from decomposing matter in the laboratory, and had collected similar bodies from the air over marshes, he did not search for them in the secretions of the sick, nor point out any connection between their presence and the diseases in question. The subject has excited much interest in Europe, and in the *Union*, for the 7th of June, we find further reference to it and some new facts of a very remarkable character. It is of so much importance practically, as well as of so much scientific interest, that we offer no apology to our readers for translating the article in full:

"Numerous communications, of different kinds, have followed the publication in our Journal and everywhere repeated, of the observations of Professor Salisbury, and the claim of priority by Dr. Lemaire, with regard to the cause of intermittent fever—or marsh fever, to speak more correctly. Without noticing all these communications, some words are indispensable to set right those writers of the American press, who, in their astonishment at the feeble scientific repute obtained by the demonstration of M. Lemaire of the febrigenous sporules in the effluvia of marshes—a silence which they find confirmation of in our ignorance of the fact—are inclined to suspect the facts and to undervaluo their reality. I should astonish them much more were I to reproduce the school recollections of an honorable associate, attributing the discovery of this fact to Gratiolet, and dating it much earlier. But exact, written, public documents, official communications like those of M. Lemaire, can alone be invoked to establish such priority. Forced thus to yield to the precision of such details, our correspondents of the Boston Medical and Surgical Journal still claim, for the glory of their compatriot, the merit of having specified, demonstrated the plant, the *alga* which produces these morbid sporules. Granted; but this discovery was made long since, empirically no doubt, and without due account being rendered of it, but nevertheless demonstrated with just as much evidence as by the learned American micrographer.

"'While I was a student,' says Dr. Vin den Curpet, 'I proved in my own person, and on many different occasions, that after keeping in my bed chamber algæ marsh plants, contained in a vase standing in a large basin, I invariably felt, some days after, genuine attacks of intermittent fever.' From that time it has been a question with him whether the cause of intermittent fevers was in the gaseous emanations of a hydrogenous nature, according to Rigaud, de l'Isle and Julia, or whether it did not exist in the microscopic algæ, the sporules of which were held in suspension by the watery vapors or raised by the wind. Time alone has been wanting to him to clear up these doubts by experiment."—(*Journal de Médecine de Bruxelles*, April, p. 230.)

In support of this assertion by the learned editor-in-chief, Dr. Hannon is none the less explicit.

"'In 1843,' he says, 'I was studying at the University of Liége. The learned Professor, Charles Morren, had excited me to such an enthusiasm in the study of the physiology of the algæ of fresh water, that I had encumbered the windows and the fire-place of my bed-room with plates full of ulvaceæ, &c. It was a great pleasure to communicate to my Professor by observations upon the algæ, and every time I did so, he said to me. "Look out for the period of fructification; the spores of the algæ cause intermittent fever. I have proved it every time I have studied them too closely." As I cultivated my algæ in pure water, and not in water from the marsh where I had collected them, I did not attach any importance to these observations. I caught the disease. A month later, at the time of fructification, I was seized with a chill, my teeth chattered—I had the fever; it lasted six weeks, and I was finally cured of it by Dr. Alphonse Leclercq at Brussels, for I had left Liége.

When I again saw the Professor of Botany, Charles Morren, I told him what had happened to me. "You see," he said, "it is as I told you; you are not the only one whom I have seen take the fever in this way."—(*The same publication*, May, p. 497.)

"Brought out by the experiments and observations of Prof. Salisbury, these reminiscences, far from weakening them confirm their reality and value, and ought to stimulate so much the more to their repetition. If truth belongs to all time and all places, it should be freed from the trammels of ignorance to take its legitimate flight and shine in all its glory. Witness the observations, the remarks, the trials made of grand discoveries, like the circulation of the blood, vaccine, auscultation, anæsthesia, before a single spirit or one powerful voice has brought them to a productive issue, established them on a scientific foundation and fastened to them his name. All of the glory of a work, which is often one of an age, of centuries and of numerous laborers, is thus fixed upon one alone; and that of Prof. Salisbury will be great if he has definitively demonstrated the cause of intermittent marsh fevers."

It is with extreme gratification that we publish the above statements, for they go very far to establish the claim which Prof. Salisbury has set up—to mark *him* as the man, who, by a more methodical process, a more patient and elaborate investigation, a more complete train of inductive reasoning, has finished the discovery, and, to borrow the figure of our friend of the *Union*, stamped it with his name. Indeed, if Prof. Salisbury's paper contains the complete history of his researches, he would seem to be entitled to unusual credit; for it was not from any suggestive hint given by another, not from any unfinished work of other investigators, but from his own original, unassisted thought that he was led to take up the study which culminated in a discovery so complete in its details as to make its announcement to the world one of the most important in medical histroy.—*Boston Med. and Surg. Journal.*

Elixir Pyro-Phosphate of Iron and Calisaya.—The pyrophosphate of iron was first brought to the notice of the Profession by E. Robequet, of Paris, in 1858, and was very favorably noticed by the French Journals. This salt of iron is very soluble, nearly tasteless, and can be retained by the most delicate stomach, as no chemical change is supposed to take place in the stomach between it and the food or the gastric juice. There is no doubt of its being one of the best tonics in use, combining phosphorus and iron.

The formula I have been using for preparing the Elixir produces a very pleasant cordial, possessing the valuable properties of Calisaya bark, deprived of its cinchotanic acid, and containing sixteen grains of the pyro-phosphate of iron to the ounce.

℞. Calisaya Bark	16	oz.	Troy.
Pyro-phosphate of Iron	2048	grs.	"
Citric Acid	480	"	"
Sugar	30	oz.	"
Hydrated pr. oxid. iron (freshly precip't)	4	"	"
Sherry Wine	6	pints.	
Oil Orange	1	drach.	

Macerate the bark in the wine for ten days, and filter, adding wine until the filtrate measures six pints. To this add the Hydrated pr. Oxid. of Iron, shake frequently for two days, filter, and add the citric acid. Now heat the pint of water to the boiling point, add the Pyro-phosphate of iron, and when dissolved, the sugar, which has had the Oil of Orange well saturated with it, bring to a boil, and mix with the vinous tincture while hot.

This preparation is so delightfully palatable it can be taken by the weakest invalid or the smallest child.

The dose recommended is a teaspoonful three times a day, in a little water to be taken before meals if the appetite is poor, but after if it is good. J. E. Y.—*Memphis Med. & Surg. Monthly.*

Hæmorrhage from Wounds of the Hand—In cases of hæmorrhage from the hand occurring from several points simultaneously, flex the forearm forcibly upon the arm, and the hemorrhage will cease, owing to the acute angle at which the radial and ulnar arteries are placed.—*Exchange.*

Local Anæsthesia.—Certain substances such as atropine, strychnine, morphine, and aconite, when mixed with chloroform and applied to the skin are absorbed very rapidly, while if alcohol is used absorption is very slow. If this by further experience prove correct, we may produce local anæsthesia without subcutaneous injection.—*Ibid.*

Milk.—To Prevent its turning Sour.—Add to each gallon of milk a teaspoonful of a saturated solution of sulphite of soda. Even in hot weather the milk will remain sweet for a week or ten days, and the sulphite added is quite imperceptible.—*Ibid.*

AMERICAN MEDICAL ASSOCIATION.—The Prize Essay Committee of the American Medical Association request that all communications, to be sent to them, be sent to their chairman before the 15th day of March next, accompanied by a sealed envelope containing the name and address of the authors. The Association offers two prizes of one hundred dollars each, for the two best essays on any subject connected with the medical sciences. F. Donaldson, Chairman; W. Chew Van Bibber, Josiah Simpson, Edward Warren, C. C. Cox, Baltimore, Md.

PERCHLORIDE OF IRON IN CANCER.—At the Medical Congress of Bordeaux a paper was read by M. Bitot upon the treatment of cancers. The author considers that perchloride of Iron is a specific for cancerous affections, He compares the action of this salt to that of iodine in case of scrofula, and suggests that the perchloride should be employed externally and internally, in order to affect both the diathesis and the diseased parts.—*Lancet.*

Prof. Wm. Warren Greene, of Pittsfield, on July 18th, removed a Bronchocele from the neck of a lady, aged 44 years, which is said to be the largest ever successfully operated upon. A full report is soon to be made of the case.

MEDICAL NEWS.

CHIMOGENE—A NEW ANÆSTHETIC.—Prof. Vanderweyde, in the *Dental Cosmos,* says: "In experimenting with the highly volatile and gaseous products of distillation, I succeeded in producing a liquid, boiling at any desired degree of temperature, say at 60°, 50°, 40°, or even at 30° Fah., causing, by its evaporation, the most intense cold. I propose, therefore, to call it chimogene (cold generator.) The desired degree of its boiling-point depends only on a slight modification in its preparation ; in fact, it may be made so volatile that it requires very strong bottles and careful stoppering to hold it, as by lifting the stopper it foams like champagne, boiling at the common temperature; pouring it from the bottle in drops or in a small stream, it will be evaporated before reaching the floor."

AN IMPORTANT DISCOVERY.—The *Pall Mall Gazette* has the following announcement: "A discovery, of at least as vital importance for Egyptology as the celebrated Rosetta stone itself, was made about three weeks ago by a party of German explorers—Reinisch, Rösler, Lepsius and Weidenbach—at a place called Sane, the whilom

Tanis, the principal scene of Rameses II.'s enormous architectural undertakings. A stone, with Greek characters upon it, was found protruding from the ground, and when fully excavated proved to contain a bilingual inscription in no less than thirty-seven lines of hieroglyphics and seventy-six lines of Greek, in the most perfect state of preservation, and dating from the time of the third Ptolemy, Euergetes I., in 238 B. C. The stone measures two metres twenty-two centimetres in length, and seventy-eight centimetres in width, and is completely covered by the inscriptions. Their first attempts at editing this important inscription having failed, the travellers returned to the spot, and during a stay of two days, the 22d and 23d of April, copied the inscription most carefully, and photographed it three times. The next post will bring particulars as to the contents, and copies of the document itself."

THE GREAT PRIZE ESSAY IN ELECTRICITY.—The French Government has issued an invitation to the savants of all nations to compete for the prize of 50,000 francs, which will be decreed five years hence to the author who shall have discovered the means of rendering Volta's pile economically applicable to manufactures as a source of heat, to illumination, to chemistry, mechanics, or practical medicine. The *concours* will remain open for five years, dating from April 18, 1866.

Sir Charles Hastings, M. D., Ed. D. C. L. Oxon., founder of the British Medical Association, died recently, at his residence near Malvern, England.

Dr. Hirschsprung states, that in some renal affections, and a short time before death, an exudation and crystallization of urea takes place on the head, neck and thorax.

Joseph Toynbee, F. R. S., long known and distinguished as an aural Surgeon of extensive practice in England, died suddenly on the 8th of July.

Arsenite of strychnia may be prescribed in doses of one or two centigrammes, in obstinate intermittents.

The post of head Surgeon to the Emperor of the French has been assigned to the celebrated M. Nélaton.

Dr. Paul Beck Goddard died at Philadelphia on the 5th ultimo, after a brief illness.

Died, in Boston, June 21, 1866, Reuben D. Mussey, aged 86.

Dr. Wm. R. Donaghe died in New York July 18.

EDITORIAL.

The skepticism of modern Physicians, like a deadly Upas tree, is fast destroying the Professional field, bringing forth its baleful and fatal fruits, and poisoning the legitimate cultivation, which has been the pride and glory of the soil. So far, it has extended rapidly and unchecked, for the labourer, conscious of the vastness of his territory, has submitted, unresistingly, to the insidious approaches of this dangerous usurper. Shall this consuming parasite be uprooted and destroyed, or shall it sap the vitality of the soil, on which it so rapidly propagates? Every member of the Profession is, in part, the owner of this soil, and upon him, in common with others, devolves the necessity for its cleansing and purification.

The mind is the soil, in which is sown the seed of the Physician's future harvests. Who is strong enough to measure the illimitable boundaries of this priceless field, and who sufficiently subtle to analyze the elements of its inexhaustible fertility? Who is not willing to till it with fidelity, and not eloquent, in admiration, as it stands forth in the glory of cultivation, and in the endless prodigality of its imperishable harvest? Is it not a privilege to all to guard such a field and to sweep, from its limits, the parasites that pollute it?

Why should there be skepticism in Medicine? Though much of the confidence that has existed in regard to it was unquestionably due to a want of knowledge, and though ignorance is always the parent of credulity, it is illogical to claim, that the converse of this is true, and to assert (as is often done) that skepticism is the direct offspring of research. It is irrational to become the blind slave of unbelief, because antecedent error is unmasked, and to adopt the creed of skepticism, when appreciating the fallacy of a previous faith. There is no analogy for so monstrous an error in the history of collateral Science. Was metallurgy reduced to chaos, because the dogmas of alchemy were proved to be without foundation, or did chemistry bury its hopes and researches, when modern discovery expunged its favourite laws? Were the antecedent truths of Botany forgotten, because a Linnæus lived, and did the faith of Galileo become less sublime, after the demonstrations of Kepler and Newton? Is the fame of Sir Charles Bell to become but a memory, since the teachings of Marshall Hall, or the genius of Paré to be repudiated, by the disciples of modern Surgery? When granaries are stored with the harvest of years, is the grain to be rejected, because chaff has been exposed? As absurd as is this position, it is the one held by all of the skeptics in Medicine. Modern Pathology has taught, that much of the therapeutics of the past was illogical and erroneous, and, as each new revelation is published, multitudes seek refuge in unbelief, foolishly affecting a superior wisdom, in the expression of a hopeless skepticism.

Skepticism, as the result of increased knowledge and more accurate research is irrational, illogical and indefensible. In Medicine, as in Theology, it is the legitimate offspring of ignorance and not of research. This is clearly demonstrable and in no respect is this fact so conspicuous, as from the superficial character of American Medical Education.

The student, who was ostensibly taught anatomy, cannot, as a Physician, locate an artery; taught chemistry, he goes to the books for antidotes, and, through his prescriptions of incompatibles, publishes his ignorance, even to the most superficial of druggists; a graduate in Surgery, he is unable to identify the commonest dislocations, and after repeatedly attending the present style of clinics on auscultation, becoming an adept in even the transcendentalism of its technology, he is unable, as a practitioner, to diagnosticate the most clearly pronounced diseases.

From such a system of Education, the land is overrun with Medical skepticism, while empiricism, which is in fact the practical protest of the people against professional ignorance, flourishes and has become almost respectable. Medical history repeats itself, and no fact is more indisputably upon the record, than that skepticism is the result of ignorance. Was not disbelief in regard to Harvey's discovery universal, until his explanation was received and understood, and was it not ignorance that produced it? It is, however, not necessary to establish, by illustration, a self-evident truth, and while, therefore, it is proper to demonstrate, that the skepticism found in companionship with research is foolish and irrational, it is appropriate to call attention to the fact, that most of the unbelief among American Physicians is naturally due to the culpably superficial character of American Medical Education.

The constant researches and important revelations in modern Pathology have induced much of the skepticism unconsciously manifested, in practice and conversation, by many of the most cultivated Physicians. Such a condition is due not only to the fact that the basis of antecedent therapeutics has been thus subverted or proved to be unsound, but to the equally important fact, that the modern enthusiasm in regard to Pathology has almost entirely checked the interest and labours in regard to Materia Medica and Therapeutics.

The skepticism due to pathological research, though conspicuous and decided, cannot long continue, for, as has been indicated, no one, reflecting seriously upon the subject, can entertain permanently views that are so illogical and irrational; no one can long contemplate the propriety of destroying the therapeutic edifice, because a portion of its material, whether in the basis or superstructure, has been found to be unsound. Every one will appreciate, that the philosophy of physics must be applied to the science of Medicine; that instead of condemning and rejecting the costly and valuable structure, wisdom and common sense teach, that judicious substitution of sound for unsound material is all that is required to preserve it—to preserve the work that ages have lavished upon it, and which future years will develop and adorn. Such skepticism carries, within itself, the seeds of its own dissolution.

It is fully as impossible that the scientific world will much longer abandon the equally important labours in behalf of Materia Medica and Therapeutics. The practical worker in Medicine sees, that the last is as important as the first. The science of preventives and reliefs cannot be subverted, by a temporary enthusiasm in regard to even so important a branch of Medicine, as Pathology is, confessedly. What has become of the constant labours, in regard to the pathology of variola, since Jenner's discovery, and in practice, which is most regarded, Paget's views of the cancer cell or the necessity for the prompt administration of opium. In ophthalmic surgery, which is most important, a thorough knowledge of the histology of the mythic ciliary muscle or that of all recent facts, in regard to the calabar bean? These questions all can furnish indefinitely, but they teach the same lesson, that modern Pathology (as important as it will always justly be) has absorbed and usurped too much of the time and labour, which could, with equal if not with greater improvement, have been bestowed upon the practical science of Therapeutics. It is not a rash prediction, that skepticism will materially disappear, as the Profession turns its attention again to the important subject of remedies and preventives. After all antecedent research in Pathology, the Physician must greatly rely upon such knowledge at the bedside, and however familiar with the perversion of function, due to disease, its modification or rectification is to be accomplished by an intimate knowledge of the agents which are proper and appropriate.

With improvement in Medical Education; with the admitted folly of rejecting most medicinal agents, because Pathology has proved that some have been often injudiciously or erroneously used; with the reasonable prospect that renewed research in Therapeutics and Materia Medica will confirm the value of many medicinal agents, and discover others equally valuable, there is ample reason for expecting that the era of skepticism in medicine will gradually draw to its close; and that, like many past obstacles in the Professional pathway, this will also be removed and form, in the minds of future Physicians, just cause for wonder and surprise.

With the history of mercury in serous inflammations, and in syphilis; of arsenic in cutaneous diseases, and in deficient capillary action; of iron in spanæmia; zinc in the perversion of nervous functions; cinchona in malarial troubles; iodine in bronchocele; iodide of potassium in nodes; alkaloids in rheumatism; colchicum in gout; chloroform in its multiple indications; opium in the relief of pain, etc., etc., is it not wonderful, that skepticism has ever become a familiar word, in the Medical vocabulary? When to these truths are added the historic facts, that medicine has, in less than two centuries, reduced the deaths of small-pox from 357 to 42; of child-birth from 86 to 17; dysentery 75 to 8; purpura 142 to 2; phthisis 1,079 to 64; syphilis 208 to 86, and many other diseases relatively; that, it has increased the average duration of life in civilized Countries, during the period mentioned, nearly ten per cent, does it not appear a shame, that this word is chiefly heard, from the lips of the Physician?

The great Science of Medicine is essentially progressive and improving, and it seems but rational to anticipate, that as increased light is manifested, the shades of doubt will vanish; that as truth is revealed, skepticism must disappear. To banish it from the field there is needed the true light of thorough education and those convictions of truth, that spring from consecutive study. The light of education, and the truth derived from study form the only efficient basis of all progress in medicine, and it is an infinite satisfaction to know, that in the constant progress of this science is to be recognised the evidence of its resting upon this sure and impregnable basis. Progress is a welcome and indisputable characteristic of the Profession of Medicine. A profession which is well described by one of its distinguished advocates, Professor Christison, as one "whose history is constant innovation and continual discovery; its pride, that it can not stand still, as the world advances in science and civilization." He had just spoken of the law, as an institution, whose principle is stability, and its ruling passion resistance to change. It is pleasing to have such testimony from a source so acceptable and equally welcome is it, to receive, from Prof. S. H. Dickson (that adept, not only in the music and grace of words, but in the harmony and force of reasoning) the valuable statement, "if we consider, that theology abounds in stereotyped creeds, and regards all innovation as heresy or sacrilege, we shall comprehend the peculiarity of our position professionally, as the emphatic advocates, of progress. We are, indeed, bound to advance, with every rising wave of knowledge, for our science is so connected with all other sciences and arts, that the fundamental institutions, which govern us, are receiving perpetual modifications, with every improvement of old, or discovery of new doctrines, whether in physics or psychology."

The Science of Medicine, as is seen then, is one of constant improvement and progress. Its advocates and representatives can justly indulge the expectation, that, the increased truth which springs from study, will expose and remove many existing fallacies, and that the light of improved education will disperse the clouds of ignorance and dispel the mists of skepticism,

The Editors of the Richmond Medical Journal take pleasure in informing their friends, that in consequence of the liberal and continued support, which has been extended to their Journal, they have purchased an Adams' (Power) Book Press, which will enable them to improve the general style and appearance of the work, and also to add one-fourth to the size of each monthly issue.

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In return for this constant expenditure of money and labour, the Editors ask only an earnest and generous support. All Physicians acknowledge a desire to see the literature of their Profession actively developed and warmly encouraged, but few give vitality to this desire, by personal energy and individual coöperation. If the Medical literature of this country is ever to make rapid improvements, in all that is really elevating and instructive, it must be through the acts and energies of the Profession, and not by its facile expressions of good will and sympathy.

Every Physician, who is in earnest in this matter, and not simply deluding himself and others looking to him for example, should select such Journals, as his judgment approves, and give to them the benefit of his works, as well as of his words. To conduct a Journal successfully, heavy pecuniary outlays are monthly necessary, and unless, from a large subscription list, these are promptly and consecutively obtained, no degree of mental or physical energy and no policy, however liberal or generous, can save the work from degenerating into insignificance and worthlessness.

Every subscriber can contribute to the improvement and development of a Journal which commands his approval and respect. Let him take the trouble (as very many kind friends have done, in regard to this work) of inducing others to unite with him, in supporting it, and let these in turn imitate such an example. It requires trouble, however, and the amount of this is the true and just measure of each Physician's interest and sympathy. If a Physician will not undergo this minor amount of exertion, in behalf of any Medical Journal, whose management he really respects and approves, he may justly doubt his interest in the current Medical literature of the Country, and regard, as a delusion, the assumption, that he desires its development and improvement. As has been said, each subscriber can, without doubt, add (if he wishes to do so) to the circulation of a Journal, and the present occasion is, reasonably and appropriately adopted, for presenting this subject to the supporters of this work. In incurring these increasing expenses, the Editors make an earnest appeal to their friends to obtain for them an increased support.

They respectfully urge upon each reader, who really wishes to bring to this Journal additional support, to give to this appeal that vitality which active, individual coöperation is sure to originate.

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MATRIMONIAL.

Married on April 11th, 1866, by the Rev. Trapier Keith, Dr. Middleton Michel, of Charleston, S. C., to Miss Cecilia Smith Inglesby, of the same City.

BOOKS, JOURNALS, Etc., RECEIVED.

The Diseases of the Ear: their Diagnosis and Treatment. A Text Book of Aural Surgery, in the form of Academical Lectures. By Dr. Anton Von Troltsch, Aural Surgeon and Lecturer in Wurzburg, Bavaria Translated from the German, and edited by D. B. St. John Roosa, M. D., Asst. Surgeon in the New York Infirmary. Illustrated with wood Engravings. 1864. William Wood & Co., 61 Walker street, New York. From the Publishers.

Rhinoscopy and Laryngoscopy; their value in Practical Medicine. By Dr. Freederich Semeleder, Member of the Royal Medical Society of the Pantheon in Paris, etc. With Wood Cuts and Chromo-Lithographic Plates. Wm. Wood & Co., 61 Walker street, New York. 1866. From the Publishers.

A Guide to the Practical Study of Diseases of the Eye; with an outline of their Medical and Operatic Treatment. By James Dixon, F. R. C. S., Surgeon to the Royal London Ophthalmic Hospital. Moorfields, Lindsay & Blakiston. Philadelphia. 1866. From the Publishers.

A Manual of the Principles of Surgery, based on Pathology, for Students. By Wm. Canniff, Licentiate of the Medical Board of Upper Canada, M. D. of University of New York, etc. Lindsay & Blakiston. Philadelphia. 1866. From the Publishers.

An illustrated Catalogue of Surgical Instruments, Apparatus, Appliances, etc., manufactured and sold by John Weiss & Son, 62 Strand, London. 1863. From Trubner & Co. London.

Illustrated Catalogue of S. Maw & Sons, London, makers of Surgeon's Instruments and Appliances, etc. From Trubner & Co. London. 1866.

Clinical Notes on Uterine Surgery, with special reference to the Management of the sterile condition. By J. Marion Sims, A. B., M. D., late Surgeon to the Woman's Hospital, New York; Fellow of Royal Chirurgical Society. London. Wm. Wood & Co. New York. 1866. From the Publishers.

A Handy Book of Ophthalmic Surgery. By John G. Lawrence, F. R. C. S., M. B., University London, Surgeon to the Ophthalmic Hospital, Southwark, etc., and Robert C. Moon, House Surgeon to the Ophthalmic Hospital, Southwark. With numerous illustrations. Robert Hardwicke. London. From Trubner & Co. London. 1866.

A Practical Treatise on Urinary and Renal Diseases, including Urinary Deposits. Illustrated by numerous cases and engravings. By Wm. Roberts, M. D., Fellow of the Royal College of Physicians, London, etc. Henry C. Lea. Philadelphia. 1866. From the Publishers.

Constitution and By-Laws and Code of Medical Ethics of the Medical Association of the City of Little Rock and Pulaski Co, Arkansas. 1866.

Epidemic Cholera. By A. B. Palmer, M. D., Detroit. 1866.

A Statement of the Causes which led to the Dismissal of Surgeon General Hammond from the Army, with a Review of the Evidence adduced before the Court.

Report of Chicago Eye and Ear Infirmary. 1866.

Excision of the Superior Maxilla. By Wm. R. Whitehead, M. D., Paris.

The Annual Discourse before the Mass. Med. Society. By Geo. C. Shattuck, M. D., Boston. 1866.

Sous Nitrate de Bismuth. Le Dr. Brassac, Medicin de Premiere Classe de la Marine. Paris. 1866. From the Author.

Transactions of Indiana State Medical Society. Indianapolis. 1866.

Trubner's American and Oriental Literary Record. London. 1866.

Eighth Annual Announcement of Chicago Medical College, Chicago. 1866.

Annual Circular of the National Medical College, Washington, D. C. 1866.

Circular of University of Maryland. Baltimore. 1866.

Herald of Health. New York.

Medical Investigator. Chicago, Illinois.

Hall's Journal of Health. New York.

Catalogue of the University of Virginia. 1865-6.

The following Exchanges are regularly received: The Atlanta Medical and Surgical Journal; Boston Medical and Surgical Journal; Braithwaite's Retrospect; Buffalo Medical and Surgical Journal; Chicago Medical Journal; Chicago Medical Examiner; Cincinnati Lancet and Observer; Druggist's Circular and Chemical Gazette; Galveston Medical Journal; Journal of Applied Chemistry; London Lancet—Original and Reprint; Medical Record; Nashville Journal of Medicine and Surgery; New Orleans Medical Journal; New Orleans Medical Record; New York Medical Journal; Pacific Medical and Surgical Journal; St. Louis Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; Southern Journal of the Medical Sciences; Southern Medical and Surgical Journal; The American Journal of Pharmacy; The American Journal of the Medical Sciences; Dental Cosmos; The Detroit Review; Philadelphia Reporter; Medical and Surgical Monthly; The St. Louis Medical Reporter; Le Mouvement Medical, Paris; Journal de Medecine Mentale, Paris; Medical Press and Circular, Dublin; Revue de Therapeutique Medico Chirurgicale, Paris; Revue Medicale, Paris; Littell's Living Age; The Farmer; Cincinnati Journal of Medicine; Canada Medical Journal; London Punch.

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ORIGINAL COMMUNICATIONS.

Qui Docet Discit.

Art. I.—Richardson's Method of Producing Local Anæsthesia. A Lecture Delivered at the University Hospital, by F. Donaldson, M. D., Professor of Physiology, Hygiene and General Pathology, in the University of Maryland. (Reported by Dr. R. H. Kealhofer, Clinical Reporter, May 5, 1866.)

Now, gentlemen, that we have had the gratification not only of showing you Dr. Richardson's instrument for producing local anæsthesia, but have demonstrated to you, in several operations, its value, we propose making you familiar with it, by calling your particular attention to its history, its manner of operation, and its peculiar advantages. It may be well to state that Dr. Richardson was previously known very favorably to the Profession, by his monograph on the cause of the coägulation of the blood, his essay upon Uræmic Coma, and his article, perfectly exhaustive, on the History of Scarlet Fever. His most valuable contributions to Medical literature, probably, were his paper on the Sub-Clavian Murmur and his volume on the Hygienic Treatment of Tubercular Consumption. This last especially showed him to be not only a man of science, but a practitioner of rare medical acumen, controlled by excellent common sense. This invention now before us, as simple as it appears to us, he has arrived at, after years of thought and study, and we confidently believe it is a production of his genius which must rank him among the benefactors of the human race. We have already the testimony of many observers as to the value of his discovery, and it affords us pleasure to speak of the satisfactory results of our own use of his instrument. We have repeatedly used it in opening carbuncles, abscesses, extracting teeth, &c.; indeed, every day or two we employ it, and render painless, operations which would otherwise cause acute suffering. Yesterday, we made an incision two inches long by half an inch deep on the back of a child, six months old, and the little creature never moved a muscle nor uttered a cry, for it felt no pain whatever. It did more than annul the pain—it prevented hæmorrhage. A few minutes after the operation, when we sponged off the pus and blood, it cried from the soreness. The child's pulse was not altered, and it received no shock of any kind to its nervous system. Most Surgeons would have hesitated to have given so young a child inhalations of chloroform. What prostration and nausea it would have produced, lasting perhaps for hours! We bear this testimony to its value with cordiality, because there are some who, on theoretical grounds, and some from insufficient trials with imperfect instruments, already carp at its employment. Certainly Dr. Richardson's reputation in the scientific world should have secured an unprejudiced trial of a discovery, which he claims as so valuable, as to be substituted, with advantage, in many cases, for the inhalation of chloroform. But we must expect this opposition, for all great discoveries have met the same fate. This, like vaccination, auscultation and etherization, must in time, from its intrinsic worth, force its acceptance by the Medical Profession. We all acknowledge that it is well to be cautious, not to adopt hastily any new discovery in Medicine; yet if we wish to keep pace with the advance in our progressive science, we must be ready to investigate fairly whatever claims to be able to promote our usefulness.

Many, even now, still question the value of our daily pocket companion, the hypodermic syringe, with its almost magical power of relieving intense agony. When etherization was proposed it met with violent opposition, and was rejected by those who, it was thought, would gladly have taken it up. Now its great value is everywhere recognized.

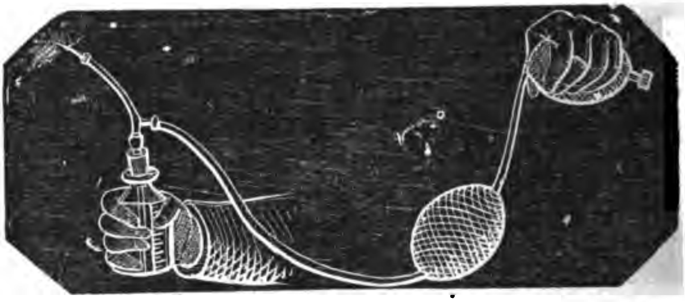
As important as was the discovery of producing anæsthesia by inhalation, and as great a boon to the human race as it is acknowledged to be, yet soon after its employment, the fact was recognized that it was not universally applicable. Fatal cases, either from an impure article, or from careless or ignorant administration, or from idiosyncracy of the individual, caused men to hesitate in its use.—Comparatively few of these fatal cases appeared, yet if you look over the files of medical Journals, you will be surprised at the number of them in the aggregate. They ought to deter us from resorting to its use, except in grave and serious operations. We all daily meet with trivial operations, where we are obliged to cause acute suffering from the knife, because we are unwilling to resort to inhalations of chloroform. We speak of chloroform as a representative of anæsthetics, and of course include ether, nitrous oxide gas, chloric ether, &c.

If we recur to the profound effects of these agents upon the organism, we are surprised that more accidents have not resulted.—Chloroform, which is the least soluble, takes one or two hours for its elimination by the lungs. Sulphuric ether, which is more soluble in the serum of the blood, can be detected many hours afterwards, as it is being eliminated by the lungs and kidneys. During all this time, these agents act, to a greater or less degree, injuriously upon the tissues and organs of the body, and impair their functions. We know now from the researches of Snow, Sansom, Anstie, Perrin and Hammond, that when taken internally through the lungs, they have a powerful effect by destroying the equilibrium and correlation of the several functions of the nervous system, and thus, while they apparently stimulate, they in reality paralyze them. Their influence commences with the nerves of the periphery, and spreads inwards to the nervous centres, sensation and voluntary motion being always affected first. We are all familiar with the fact, how early the brain becomes under its influence, as shown by the derangement of the balance of intellectual functions, and of the nerves proceeding directly from the brain, the motores oculi, &c. Next in order, we have the spinal cord affected—paralyzed in its successive sections from behind forwards—from below upwards in the human subject. If chloroform and its congeners stopped here, in their paralyzing influences, we could all use it without much risk for the most trivia operation; but I need scarcely remind you gentlemen, who almost daily witness in this Hospital its effects, that such is not the case, but that carried a step farther, it influences powerfully the medulla oblongata and the sympathetic system. When you get your patient under the power of anæsthetic fluids, in their later stages of narcotism, you will notice their paralyzing effect over the nervi hypoglossi, which preside over the movements of the tongue, in the thick and confused articulation. Next will be noticed the still more serious disturbance of the medulla oblongata, as seen in the hurried, irregular and abnormally depressed respiration, dysphagia, &c. How near this brings your patient to death by apnœa! Unfortunately patients have thus died under the anæsthetic influence, as they have also from the still further disturbance of the economy, by its action on the great sympathetic, presiding as it does over the organic functions, especially the cardiac sympathetic, and causing death by cardiac palsy. There is but one step from the suppression of the vegetable functions to that of the organic.

This being the case, is it not wonderful that chloroform has not had more fatal results? Dr. Snow has established the fact, that these narcotics produce anæsthesia, by the process of arresting oxidation. Dr. Beale has declared that oxidation of the tissues, &c., was not formative, but destructive, and only affecting structures already living. Dr. Richardson shows that arrest of oxidation means consequently arrest of motion, and that, in fact, anæsthesia amounts to the temporary death of the part influenced, that is, inertia of its molecules. How desirable then is it to substitute, whenever it can be effected, some agent which will annul the sensibility of a portion of the body to be operated upon, without touching the functions of the medulla oblongata and the great sympathetic, and thus endangering life. The first step in this direction was Dr. Arnott's use of extreme cold, by means of ice and salt, applied in a bag. As far back as 1849, we saw Velpeau extract toe nails by its use. We have repeatedly used it, and seen others use it, but with very incomplete success and many failures. It is a bungling and very slow operation at best, even when successful, and gives for these causes great pain, if not as much as the use of the knife.

Patients actually prefer the incision to be made without its use.—The fact that Arnott's suggestions date back nearly thirty years, and are now but rarely acted upon, shows how ineffective they have proved. M. Demarquay, a distinguished French Surgeon, came very near making the discovery. He had performed many painful operations by letting fall ether, drop by drop, upon the surface he desired to render insensible, and then inducing a rapid evaporation by a current of air. M. Désormaux came nearer still, for he states that he has actually used for ten years a bellows invented by Charriére, throwing air and ether on a part at once, with more or less success. Dr. Richardson, as far back as February, 1859, published his efforts to produce local anæsthesia by Voltaic narcotism. His idea was, that by quickening the circulation of a part by galvanic stimulus, and immediately applying over the part where the circulation was quickened, a narcotic solution which the blood could absorb, he could so charge the blood locally with the narcotic substance, as to produce anæsthesia. He succeeded, he said, in feeble subjects temporarily, but that in the stronger subjects he failed, because the absorbed narcotic floated into the general circulation; but he now acknowledges that he committed the paradox of applying a form of motion for the indirect production of inertia.—His next step was to apply, by the hypodermic plan, narcotic solutions, after having previously used Arnott's ice and salt, but this too was abortive.

The toy used for the diffusing of eau de cologne in the form of spray, suggested, to his inventive genius, its use for the purpose of producing local anæsthesia. This he adapted to Seigle's apparatus, with Dr. Andrew Clarke's hand-ball spray-producer, and tried experiments as to the vaporization of all the known volatile liquids, and he thus advanced to a very important result, namely, that the intensity of the cold produced held a definite relationship to the boiling point of the fluid used; the rule being, that the lower the boiling point, the greater was the amount of cold exhibited.—He employed a very delicate thermometer, and by the use of rectified sulphuric ether, he brought down the thermometer within 10° Fah. of zero, and applying it to the skin, produced a marked degree of insensibility, but not sufficient for surgical purposes. Afterwards, by using the spray apparatus in a cylinder containing ice and salt, he brought the thermometer down to 6° Fah. below zero, and applied it to the extraction of teeth with success. But the tube became blocked up, by the condensation of water derived from the air in the air-tube, and the fine jet was closed by the ice formed. He finally abandoned the idea of using salt and ice. It occurred to him that if a larger amount of ether could be brought through the same orifice by mechanical force, in the same interval of time, and with the same amount of air, that he could effect his object—a proportionate increase of cold. As he states, it was a theory of pure physics, admitting of arithmetic demonstration, and running parallel with the ascertained fact, that the cold produced by liquids bears a definite relationship to the boiling point of the fluid used. His theory proved correct to the letter, for by forcing over the ether under atmospheric pressure, instead of trusting simply to capillary action or, to motion, the spray evolved brought the thermometer within thirty seconds of four degrees below zero. I here show you the apparatus as invented and used by Dr. Richardson. When we first read Dr. Richardson's article in the February number of the *London Medical Times and Gazette*, we seized upon it with avidity, as supplying a want we had long felt. We endeavored to have one constructed in this city, but unsuccessfully. This is an imitation made by Tieman & Co., of New York, but the spray is too large, and although it is imperfect, it does act with astonishing rapidity. The English instrument we ordered from London, but by some mistake it has not reached here yet. You find, on examining the instrument, that it is very sim-



ple; the bottle containing the fluid has a cork which is perforated to insert a tube which goes near the bottom of the fluid, and around this is another tube ending immediately below the cork, and extending out to the extremity. This is perforated just above the cork, by a tube connecting with the hand bellows, with an intervening receiver which makes the stream of vapour continuous. The inner tube for the ether goes nearly to the extremity of the larger one. You will perceive that when the bellows are compressed, a double current of air is produced, one current descending and pressing upon the ether, forcing it along the inner tube, and the other ascending through the outer tube, and playing upon the columns of ether as it escapes through the fine jet.

Dr. Richardson did not exaggerate, when he announced that, by this simple apparatus, at any temperature of the day and at any season, we had in our hands means for producing cold even 6° below zero, and by directing the spray upon a half inch test tube containing water, we can in two minutes produce a column of ice.—Further, by the use of a spray catheter, we can send this anæsthetic influence into the bladder, and, by one adapted for the uterus, into the uterus. It produces no irritation, and may be used to a deep wound. The sensation is immediately one of intense cold, and within a minute, ordinarily, perfect loss of sensibility.

In his first communication, in February last, he mentions a number of cases where it had been used with success; one case where he had narcotised the parts to the depth of two and a half inches, producing complete insensibility, showing that it was not simply superficial anæsthesia which he effected. It has been now used, over and over again, for minor operations, such as opening abscesses, tooth extractions, tying piles, incising carbuncles, &c. We have used it repeatedly, as we before stated, in private practice, for opening abscesses, carbuncles, &c., and have made an incision two or three inches long and half inch deep in a child six months old, without its wincing, and that too in thirty seconds!

You have seen it employed here for phymosis, for amputation of toes, where the incision through the integument was painless. With the spray apparatus, as made in Boston, where you have simply the suction movement, the result is, as we have tried it, uncertain. On one occasion we administered it at a Dentist's with unpleasant effects. It was for the removal of teeth in the upper jaw, but the Dentist had used cotton to fill the mouth with, to prevent the inhalation of the vapor of ether, but it did not absorb it, and the patient inhaled the vapor, and swallowing the ether, was thus made sick by it. After this we got Messrs. Jennings & Co., to import the fluid known as Rhigolene, which is a naphtha derived from that recently discovered compound petroleum, which has already been, by the ingenuity of man, turned into such useful channels. This fluid was proposed by Dr. Bigelow, of Boston. It is highly inflammable, and is the lightest of known liquids, having a specific gravity of only 0.625, and boils at 70°, having in this way a great advantage over ether, the purest of which boils at about 90°, and the ordinary ether met with at 96°. We have repeatedly used it in the mouth while Dentists removed teeth, and we find no unpleasant results. The slight burning sensation and the unpleasant taste, is exceedingly evanescent, the fluid being very volatile. As I hold it in my hands you perceive how it boils, yet to the hand there is no sensation of heat, which seems curious, because we associate boiling with 212°. The vapour condenses so rapidly that there is no danger; at least we carry it about in our pockets when the temperature of the atmosphere is upwards of 80°. We feel confident that Dr. Richardson will adopt the Rhigolene, for in his very first promulgation of his discovery he speaks of how desirable it would be to have a fluid of the hydro-carbon series, with a boiling point of 75° or 80°; moreover all the ordinary ethers contain alcohol, which interferes with the success of the operation, and prevent perfect anæsthesia, besides producing a burning and tingling during reäction. You noticed all of you, no doubt, the whitening influence of the anæsthetic and the coägulation of the vapour, or the formation of ice. Before using the knife you can test, with a needle, the absence of sensibility. The patients sometimes say they feel the touch, but not the pain of the incision. The reäction is in no degree painful, and what is of the utmost importance, the hæmorrhage is controlled. Dr. Richardson explains the modus operandi of this process, by stating that it acts at first merely by extracting force, and afterwards, when the nervous filaments are exposed, by presenting the conveyance of force through them—sensation meaning the conveyance of force or motion from the extreme parts to the brain—so that when we administer chloroform by inhalation, we stop the evolution of force by arresting oxidation of blood, and when we employ this instrument we rob, by cold, the local part of the force which has been brought to it by the blood. In addition to cold, Dr. Richardson thinks the substance used controuls, by compression and by narcotising, the conducting power of nerve matter.

Dr. Sansom, of London, who reports a number of successful operations, states that he is convinced that the anæsthesia produced by the spray, is due simply to the low temperature caused by the rapid vaporization, and that the very fact of the production of cold, the consequent contraction of the blood vessels, and the paralysis of all the nerves, render impossible any absorption of the anæsthetic.

But it is asked, is it not a serious thing to suspend vitality to produce temporary death? Not only from theory do we reply in the negative, but from facts. The rapid abstraction of heat force cannot be at the moment supplied by the 98° of the blood, so that it congeals, insensibility is produced, but the force of the general circulation is not impaired, and almost instantly on the removal of the external reducing agent, the torrent of blood rushes in and restores the vitality. Of course, if kept up too long, as in frost bites, you would have not merely suspension but destruction of vitality. But as Richardson observes, with acuteness, when we cause general anæsthesia, we produce an approach to temporary death of the whole organism!

We have heard of a case in a neighbouring City, where a Surgeon, by this mode, actually froze the contents of a hydrocele, which he certainly must have done without reflecting, that, of course, being a fluid not vitalised, but outside of the influence of reäction by currents of blood, it would remain congealed long enough to produce trouble, and so it did—it actually was followed by sloughing of the scrotum.

We do not pretend that Dr. Richardson's discovery can be used in all capital operations, but we do maintain, that with it we can produce complete insensibility of the integument, and for one and a half to two inches deep, and that it can be used with success in amputation and other operations, where the incision through the integument is the principal pain inflicted. Dr. Richardson speaks of deadening the sensibility of the mucous membrane of his own eye, but we should fear it was dangerous to be used about the eye, for fear of freezing the humours, which might be followed by disorganization.

The question of the applicability of this mode of producing insensibility in capital-operations, is not merely theoretical. I hold in my hand the London Medical Times and Gazette for April, just received, in which we have the details of its perfectly successful use in a case of Cæsarian section, by Dr. Greenhalgh, and again in two cases of ovariotomy by Drs. Brasson and Spencer Wells? What now will the objectors say? The Cæsarean section is not only a capital operation, but perhaps the greatest operation in Surgery. The report of the case is so interesting that I must read portions of it to you:

"Previous to the operation, the body of the patient was laid in a semi-recumbent posture, her head being firmly supported with pillows. Dr. Greenhalgh having indicated the line of his proposed incision from the umbilicus towards the pubis, I commenced to narcotise locally in the centre of the space, making the ether-tubes bend a little towards each other, and directing the brush of spray about one inch and a half from the skin. In a few minutes I found that the ether was telling on a space full four inches long and two broad. I therefore widened the spray by bringing the spray tubes parallel, and I made a gentle movement upwards and downwards, treating the spray as if it was a brush. The whitening of the skin was perceptible at the twenty-fifth stroke of the bellows; at *forty-five seconds the insensibility was perfect*, and Dr. G. made his incision down upon the uterus, dividing the skin and deep layer of fat with one sweep. I moved the spray in company with his knife, and the uterus was made bare. *During this time patient remained absolutely unconscious of the incision; she neither winced nor spoke; her countenance was perfectly placid, and her pulse, which was being observed by Dr. Wilson, of Glasgow, underwent no variation.* A breath of ether spray was directed upon the uterus, but according to our preconcerted plan, the ether was now withdrawn from the open wound, and was directed on the skin surface, which had not been divided on the right side, below the level of the umbilicus.—The uterus was thus prompted to contract readily. Having made also painless his incision into the uterus, Dr. Greenhalgh began to introduce his hand, but was somewhat impeded by the uterine contractions. At this point the patient first showed signs of uneasiness, and she asked, 'What is he doing?' He took hold of the child's feet, and the uterine contractions expelled the child. The uterus contracted at once so freely, that Dr. McClintock, of Dublin, agreed with Dr. Greenhalgh not to use sutures in the uterus. We waited twenty minutes for fear of hæmorrhage, but there was none. During this time she conversed as calmly as possible. In inserting the sutures into the skin, I narcotised for Dr. G. with a small single jet, point by point for each needle, and she felt no pain."

Is not that a complete success? The wound healed with the first intention, and there was no inflammatory indication. The appetite and sleep remained good, and general health was unimpaired. Was not this a triumph, gentlemen, for Dr. Richardson? and was it not far preferable to inducing general anæsthesia, for the operation was as painless.

It is stated that the patient was nauseated previous to the application of the ether. Would she not have vomited from the effects of inhalation? This result would have produced an unpleasant complication, for it might have forced the intestines into the wound. The tendency of this local influence was to check vomiting, and it did actually control hæmorrhage, for she lost only three ounces of blood. The uterine contractions were promoted by the cold. You will have noticed, in the report, that there was not the least shock to the nervous system, nor was there any evidence of cardiac embarrassment. Was not the consciousness of the patient a decided advantage to the operator? She was not in the least restless, and never even moved her body. Who could have guaranteed that her condition would have been as favorable if she had inhaled the vapour, instead of having it applied externally? Bear in mind, gentlemen, that she might have died from general anæsthesia, a result which was impossible under its local application.*

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* Since the delivery of this lecture, the Cæsarean section has been again performed with success, under the influence of this local anæsthesia.

The details of the two cases of ovăriotomy are scarcely less interesting. In both cases the incision through the abdominal walls was rendered perfectly painless.

The operation for strangulated hernia has been successfully performed, under its influence, by Dr. Thorburn.

Who can deny that these cases mark a distinctly progressive step in Medical Science, which can be turned to great advantage in the practice of the Art? Are we premature in predicting for the instrument universal acceptance, as a means for alleviating the horrors of Surgery? It has already proven itself valuable in the treatment of hæmorrhages and intense neuralgia. Dr. Richardson proposes to use other remedies, for local influences, mixed with the ethers. He will shortly publish a "Manual for Local Anæsthesia."

We commend the subject to your thoughtful consideration, and feel that our time has not been wasted, if we have assisted you in your mission of usefulness, even to the extent of relieving one human pang.

Art. II.—Remarkable Case of Delivery of Remains of Fœtus per Anum. By John Lewis, M. D., of King William County, Virginia.

On the morning of the 19th of April, 1864, I was called to see a negro woman, between thirty-five and forty years old, said to be labouring under chronic dysentery. I found her feeble, very much emaciated, and confined to the bed. Upon enquiring into the history of the case, all the information elicited was, that she had been suffering, for several months, with chronic disease of the bowels, attended with frequent discharges of mucous, mixed with blood and purulent matter, with other symptoms, characterizing disease of the large intestines.

Of the previous treatment of the case, they were ignorant, and as the Physician, who had formerly charge of it, had left the neighbourhood, I had no means of knowing. Suffice it to say, from the facts before me, I looked upon it, as a case of chronic disease of the large intestines. I directed milk toddy, made with brandy, and gave her some gentle astringent and anodyne. On the 21st I ordered a small dose of ol. Ric. guarded by an anodyne.

On the 22d I was called in great haste to see her. The oil had acted partially, and the rectum was nearly occluded by some substance. Upon introducing the finger, I detected a small piece of carious bone; this I believed to be the coccyx of the woman, in a necrosed condition, and removed it with some difficulty. Farther examination detected a mass of bones wedged in the rectum. Introducing two fingers of the left hand, into the rectum, and separating the parts, by distending the sphincter as much as possible, (which fortunately, was considerably relaxed, and seemed to adapt itself to the circumstances of the case) at the same time, with a delicate pair of forceps, in the right hand, I extracted, what I immediately recognized as the parietal bone of a fœtus, and continued to extract a second parietal, the frontis, the occiput, the clavicles, humerus, femurs, &c., until the greater part of the most compact and hardest bones of the skeleton were removed. This process was facilitated by injecting water up the rectum.

After this operation, for the first time, the woman told me she thought she had been pregnant the year before, and all symptoms had subsided, without giving birth to a child. The woman was thirty-five or forty years old; had given birth to five children before, with as little inconvenience as most mothers.

In 1863, she thought she was pregnant, and gestation advanced as usual; nothing to distinguish it from her other pregnancies. September was the ninth month; during that month she was taken with rigor, a small discharge from the vagina, pains resembling labour pains, though not as severe as usual. This condition lasted for several days, and then all the symptoms subsided, the abdominal enlargement gradually disappeared, and her health was bad. Dysentery came on about two months before I saw her the first time.

After the removal of the bones she recovered rapidly, and by the 28th of April I discharged her as entirely convalescent.

The first piece of bone extracted, I thought was a portion of the coccyx of the mother, as it seemed to be attached. The other bones, before seeing them, I thought had been swallowed without mastication. I thought the bones indicated full development of the fœtus, from their size and compactness. The mother told me she thought she felt the motions of the child, as in ordinary pregnancy. I carefully preserved the bones, intending to exhibit them, and also to publish the case, but my house was visited by the raiders, and the bones, like many other articles of my property, were wantonly destroyed.

The woman, now nearly two years from the occurrence, enjoys good health ; has menstruated regularly since her recovery, but has not been again pregnant. She did not menstruate from the time of her supposed pregnancy, or during it, until after the removal of the remains of the fœtus.

After extracting the bones, I endeavored to examine the rectum, in order to ascertain if there was a communication with the vagina or any other organ, without finding one, nor was there, at any time, fœcal matter voided through the vagina.

My opinion is, that it was a case of extra-uterine pregnancy; it progressed to maturity, the fœtus being enclosed in a sack extemporised for the occasion ; delivery being impossible, per vias naturales, the fœtus died ; the soft parts were absorbed, leaving the bones of the fœtus ; adhesion took place between the sack and the colon or rectum, and finally, by sloughing of the parts, an opening was made, and the bones made their exit per anum.

ART. III.—DIPHTHERIA—ITS HISTORY, PATHOLOGY, NATURE, AND TREATMENT. An Essay which received the first Prize of the Medical Association of the State of Georgia, June, 1866. By E. S. GAILLARD, M. D., Richmond, Va.

Name.—There has been much contention, as to an appropriate name for this disease; it is almost beyond conception to see the titles, under which it has been described. Nothing, better than this, can explain much of the antagonism, obscurity and contradiction that have prevailed, in regard to its pathology. We have selected the names given by different authors and writers, as indicative of the controversies that have arisen in relation to them, and give them as follows : Morbus Strangulatorius (Starr ;) Malignant Sore Throat,

(Fothergill;) Suffocative Angina, (Bard;) Malum Ægyptiocum, (Aretœus;) Ulcus Syriacum, Diphtheritis, (Brettonneau;) Diphtheritica Maligna (Trousseau;) Diphtherite, (Rilliet, Barthez and others;) Malignant Ulcerous Sore Throat, (Huxham;) Angina Maligna, Angina Gangrenosa, Angina Pellicularis, Angina Pestillentiel, Angina Suffocante, Epidemic Angina, Scarlatina Anginoso, Angina Couenneuse, Pharyngite Couenneuse, Pharyngitis, Pultaceous Pharyngitis, Plastic Pharyngitis, Cynanche Maligna, Cynanche Gangrenosa, Epidemic Cynanche, Membranous Cynanche, Membranous Tonsillitis, Membranous Disease, (Cotting;) Pseudo-Membranous Pharyngitis, Putrid Sore Throat, Throat Distemper, Garrotillo, Male de Canna, Gulæ Morbus, Morbus Suffocans, and infinitely contradictory names, in other languages.

It will thus be seen, that it was not so easy a matter to reconcile these endless differences and disputes, and to select a name which would, at least, be adopted by a majority. It is of great importance, that a disease should always be described under an invariable name; otherwise, it is almost impossible to properly study its character and history. We can best obtain a true conception of a pathological condition, by adopting a word so clearly comprehensible, that it shall express this condition, and by so defining the condition to which the word is to be applied, that such application shall be uniformly and necessarily correct. If this is not done, the inevitable result always is, that writers, by the same word, symbolize different pathological conditions and the same pathological conditions, by different words. This is remarkably true, in regard to the written history of diphtheria. We have the same word applied to very many and different diseases and the same disease described, under entirely different words. Most of the writers of England and America have selected the word adopted, though not suggested, by Dr. Farr, (the Registrar General of England,) Diphtheria. It is the word most commonly selected, by those who write in English, though many prefer to continue the existing confusion, by adopting some of the many titles already existing, or to increase it, by forming a word to suit their own fancies. It is to be hoped, that however much it may do violence to their peculiar rules of etymology, all writers will adopt the word, now so universally used, in the valuable medical literature of England.

Many writers object to the term diphtheria, as "barbarous" and unscientific, and as an absurdity in the uses of etymology. With all deference, we submit, that the word diphtheria is correct in etymology, correct in analogy, and correct in euphony. It is based on the Greek root *διφθερα*, signifying a membrane, skin, or hide. Diphtheritis signifies an inflammation of the skin or hide, which is false in fact; whereas, diphtheria signifies a disease, characterized by the formation of a skin or membrane. It does not define the disease, but it certainly suggests its chief characteristic. The termination in itis, by the general usages of terminology, signifies a a high degree of inflammation; whereas, in diphtheria this is not always the case, and is often a gratuitous assumption. Many of the most fatal cases never manifest this inflammation. Again, the termination in itis usually implies, that there is an attending constitutional disturbance, as a result of this inflammation; whereas, the constitutional disturbance is, at times, not a result, sometimes it is absent, and, at other times, it precedes the local trouble.

Death frequently takes place, when the constitutional trouble is slight, and occasionally when it is absent. Even granting, that the word diphtheritis did not suggest an error, there is no more reason for the etymologist to use this word, in the place of diphtheria, than there is for his using the term pneumonitis, instead of pneumonia; When, however, the term diphtheritis implies not only an error, but a pathological condition, not in any degree existing; and when the word diphtheria suggests a disease, whose chief characteristic is indicated in the etymology of the word selected, it seems strange indeed, that there should be the least difficulty or hesitation manifested, in making an appropriate and proper choice in the titles presented. Etymology, analogy and euphony are all consulted and respected, in the name now generally adopted, viz: dipththeria.

Pathology.—This is confessedly the most difficult and important branch of this subject; its etiology is not specifically a necessary and essential object for study, as even if neglected, it would but place the disease in the long catalogue of those whose causes are unknown. Its treatment, however, to be rational, and its investigation to be successful, must be based upon a correct knowledge of pathology.

What is diphtheria? The diseases with which it may be confounded are chiefly pharyngitis, muguet, aphthous inflammation of the mouth, erysipelas, croup, and scarlet fever. We will examine and carefully contrast it with each of these diseases; but with croup and scarlet fever more particularly, as with these diphtheria is chiefly confounded.

The difference between pharyngitis and diphtheria is clear and decided. In the first, we seldom find a false membrane present; in the last, this is seldom (if ever) absent. In the first, if this membrane is present, it rarely extends; in the last, almost always present, it seldom fails to extend. In the first, the constitutional disturbance is usually severe; in the last, it is usually slight. In the first, the swelling of the lymphatic glands behind the jaw, is seldom present; in the last, this swelling is seldom absent. In the first, the fauces are generally of a scarlet colour; in the last, they are more nearly of a claret colour. In the first deglutition is invariably painful; in the last, it is exceptionally painful. The fever attending the first disease is marked, the pulse rising often to one hundred and twenty beats in the minute; in the last, it is slight, the pulse rarely exceeding ninety to one hundred beats per minute. Convalescence, from the first, is prompt and continuous; from the last, it is slow and frequently interrupted. In pharyngitis, we seldom have complications, and there are no sequelæ; in diphtheria, we have frequent complications, and we very often have sequelæ. The prognosis in the first is, as a rule, very favorable; in the last, it is very often unfavorable. The mortality of the first is slight; that of the last, often severe. The first is seldom, if ever, epidemic; the last is very often epidemic. The diagnosis of the first is simple; that of the last complicated.

The differences between muguet and diphtheria are sufficiently numerous and marked, to render a mistake, in regard to them, almost impossible. Without entering into the elaborate researches of Guersent, Plumbe, Gyot, Gurly, Oësterlein, Empis, Laycock, Harley, Rogers, Lebert and others, in regard to the special peculiarities of the exudations in muguet and diphtheria, it will be suficient to say, that the existence of the parasites, oidium albicans, leptothrix buccalis and the hæmatophyta of microscopists do not serve the purpose of a theoretical or practical distinction between the respective diseases. Muguet is chiefly and perhaps solely, a disease of infants at the breast; whilst diphtheria is not peculiar to any age. The first usually commences in the mouth; the last in the fauces. The exudation of the first is curdy and flocculent; that of the last membranous, uniform and coriaceous. The constitutional symptoms of the first are slight and often absent; those of the last are often grave and usually present. Muguet is not epidemic; diphtheria is very frequently so. In the first, the swelling of the lymphatic glands behind the jaw is seldom seen; in the last, it is seldom absent. Deglutition is not impaired, in the first; in the last, it is troublesome and frequently painful. In the first, there are no complications, no sequelæ, and there is prompt and continuous convalescence; in the last, there are complications, troublesome sequelæ, and the convalescence is slow, protracted and frequently interrupted. The prognosis is always good in the first; in the last, it is often grave.

Aphthous inflammation of the mouth is often mistaken for diphtheria. The distinction between them is marked and decided. The mistake, however, has been made, we have observed, by Brettonneau, Valleix, Roche, Barthez, and others. The microscopic distinctions will not be given, for they are not uniformly recognized, even by good authorities on this subject. They are not easily made by the majority of the Profession. [Laycock observes, that in diphtheria the microscope reveals the spores and mycelium of the fungus; in aphthous inflammation of the mouth, there is nothing of peculiar or special importance revealed.] The exudation in diphtheria is not follicular, vesicular, nor ulcerative; in aphthous inflammation of the mouth it is follicular, vesicular, and often ulcerative. In the first, (diphtheria,) there are swellings of the lymphatic glands, obstructed deglutition, fever, sequelæ, complications, notorious mortality, epidemic prevalence, interrupted convalescence, and frequently a grave prognosis. In the last, (aphthous inflammation of the mouth,) there are no swellings of the glands, no impairment of deglutition, no fever, no sequelæ, no complications, no mortality, no epidemic prevalence, no interruptions in convalescence, and no doubt as to recovery.

Erysipelas is considered, by very many, as closely allied to diphtheria. It is stated, by one of our best and most careful authorities, "that, in the whole range of nosology, the nearest analogy to diphtheria appears to be presented by erysipelas." We propose, with all deference to those more capable of judging, to examine this relation, and to show what we believe are the great and irreconcilable differences.

We will speak of erysipelas, as pathologically restricted to the idiopathic form, and that in which the head and face are the chief seats or manifestations of the disease.

In erysipelas, the throat does not always suffer; if it does, we have a simple sore throat (a pharyngitis), with no membranous exudation, and with a diffused redness of the fauces. In diphtheria, th throat is almost invariably affected; we have a membranous exudation (of progressive character) formed, with a claret and not a scarlet coloured appearance of the fauces. In erysipelas, we have occasionally an ulceration of the throat; in diphtheria, as a rule. the inflammation is not vesicular, follicular nor ulcerative. In erysipelas, the invariable rule is a cutaneous eruption; in diphtheria, cutaneous eruption is the rare exception to the rule.—Erysipelas, as a rule, is sporadic and rarely epidemic; its contagiousness, unless by writers in England and America, generall denied. Diphtheria is often epidemic and its contagiousness very often admitted. In erysipelas, the constitutional disturbanc is seldom slight; in diphtheria, it is seldom severe. In erysipelas, the eruption (always attendant) is marked by heat, swelling, tingling, stiffness, and continuous red colour; it has a distinct elevation of margin; advances progressively; is sometimes attended with bullæ or blisters; is frequently deep-seated, sometimes resulting in sloughing; ends generally in desquamation. In diphtheria, the eruption (seldom attendant) is not marked by swelling or stiffness; is not continuous, but appears in patches; has no elevated margin; does not (on the skin) extend creepingly, or progressively; is never deep-seated; never attended with bullæ; never causes sloughing: ends, very rarely, in desquamation. Erysipelas is classed with the exanthematous diseases; diphtheria is generally regarded as a specific disease.

In erysipelas, there is often cerebral disturbance and, in bad cases, there is delirium, stupor and coma. In diphtheria there is never any mental disturbance, and, in bad cases, the patient dies with intelligence and consciousness unimpaired. Diphtheria attacks children chiefly; erysipelas, chiefly adults. Metastasis is frequently seen in erysipelas; it is never seen in diphtheria. Cerebral effusion is not uncommonly the cause of death in erysipelas; it is never the cause of death in diphtheria. Œdema of the glottis is one of the terminations of erysipelas; exudation there being never seen. In diphtheria death, from œdema of the glottis, never occurs. Typhoid symptoms, (cerebral disturbance, frequent pulse, subsultus tendinum, floccitatio, dry and brown tongue, diarrhœa,) frequently occur in erysipelas; they never occur in diphtheria.

With traumatic erysipelas, erysipelas of the body, and infantile erysipelas, we do not think it necessary to contrast or compare diphtheria. If they be compared, however, the membranous exudation of the throat; the usual absence of cutaneous eruption; epidemic prevalence; contagiousness; slight constitutional disturbance at first; absence of swelling, stiffness and elevation in regard to the eruption; swelling of the lymphatic glands; superficial nature and character of the eruption, with invariable absence of sphacelation and sloughing; slight desquamation; freedom from metastasis, typhoid symptoms, mental disturbance, stupor and coma; peculiar complications, sequelæ (chiefly different forms of paralysis) and cerebral effusion always absent; laryngeal symptoms, etc., which are all characteristically peculiar to diphtheria, will serve to distinguish it readily from each and all of these forms of erysipelas. We do not see how, with these distinctions, they can ever be confounded.

Croup differs radically from diphtheria. We shall, by the term croup, always mean true croup; the disease as it has been described by Cullen, Cheyne, Home (who originated the name), Hosack, Stokes and others; cynanche trachealis, tracheitis. We shall not have any reference to false croup, (the spasmodic laryngitis of Barthez, Rilliet and others,) or to spasmodic croup, but to the disease, as investigated by the concours of Napoleon I, in 1807—the disease, with which diphtheria is most frequently confounded.

Diphtheria is a disease of the blood (a toxæmia) with local manifestations; croup is a sthenic phlegmasia. (Dr. Hauner, of the Children's Hospital, at Munich, declares, that "it can not be shown, that croup is connected with any peculiarity of the blood crasis.") In diphtheria, the blood is always primarily affected, whilst we may or may not have any local manifestation; in croup the blood, if at all, is affected secondarily, whilst we always have local symptoms. Diphtheria commences in the blood, and first exhibits itself, locally, in the fauces; croup does not commence with blood changes, and exhibits itself in the trachea. Diphtheria begins above the rima glottidis, and never extends below, unless it subsequently becomes complicated with croup; croup begins below the rima glottidis, and never extends above it. Diphtheria is a constitutional disease and asthenic; croup is a local disease and sthenic. In diphtheria, the constitutional symptoms are primary, and the local symptoms secondary. In croup the local symptoms are primary and the constitutional symptoms secondary. The first is often contagious; the last is not contagious. The first (though attacking children most frequently,) is not peculiar to any age; the last is peculiar to childhood; seldom attacking any one over the period of puberty. (In 91 cases of croup, Jurin reports only one over ten years of age.) In diphtheria, at first, the respiration is not affected, and not at all, unless the disease extends downwards. In croup, the altered and impaired respiration is immediately a prominent symptom; when the disease continues, it is the chief symptom. In diphtheria, there is no cough, unless croup supervenes; in croup, there is always a cough. (Croup is just as much a complication of diphtheria, as is bronchitis or pneumonia, and there is as much reason for calling diphtheria bronchitis or pneumonia, as there is for considering it croup; they are all complications of diphtheria; symptoms which are merely incidental.) The membranous exudation of diphtheria always commences above the rima glottidis; the exudation of croup always below. There is, occasionally, a cutaneous eruption in diphtheria; in croup, there is none. The first is often epidemic; the last always sporadic. There is, as a rule, swelling of the lymphatic glands in diphtheria; in croup, as a rule, it never occurs. Diphtheria generally lasts two or three weeks; the mildest case, several days. Croup usually terminates in one, two or three days; the mildest cases, in a few hours. (Craigié affirms, that it is never protracted beyond the eleventh day.) In diphtheria the exudation is fibrinous; in croup it is albuminous. Dyspnœa (if it exists) in diphtheria is uniform; in croup it is spasmodic. In the first, it is not produced, or increased by deglutition; in the last, it generally is thus produced and thus increased. Diphtheria invades at all hours; croup invades (if it does not always commence) at night. Dampness and cold cannot produce diphtheria; they are the chief causes of croup. In true croup, anti-phlogistic treatment is demanded, and produces decided benefit. In diphtheria such treatment is forbidden, and produces decided danger, if not death. The testimony of Cullen, Craigié, Cheyne, Home, Hosack, Gregory, Stokes, Alison, Watson, Farre and others, on croup, and that of Brettonneau, Trousseau, Barthez, Rilliet, Sanderson, Greenhow, Hart and others on diphtheria, will verify this declaration. The statistics of tracheotomy prove, that there is a resiliency, a constitutional elasticity in croup; that there is none in diphtheria. [Note: Trousseau, whose experience on this subject, is the largest on record, states, that the indications for tracheotomy should be promptly and early met, unless the patient be suffering from diphtheria. This is now his rule.] In diphtheria we have, as a result, paralysis and other consequences manifested. In croup, we have nothing of this kind. In diphtheria fœtor of the breath is constant and invariable; in croup, it is slight, and seldom occurs. In croup, there is no "dissolution" of the blood; in diphtheria, it is a chief pathological characteristic. In diphtheria the constitutional symptoms precede the local; in croup, the local precede the constitutional. In diphtheria, the membranous exudation of the fauces is almost always present, and can always be seen. In croup, this exudation does not even frequently take place, and when existing, can seldom be seen without the laryngoscope; in diphtheria, it is present as the rule; in croup it exists as the exception. In diphtheria, the exudation is thick and coriaceous; in croup, it is neither thick nor coriaceous. The membrane of croup is renewed, as an exception; that of diphtheria, as the rule. In croup death, usually occurs from apnœa; in diphtheria, uncomplicated, from asthenia. In croup, the sound of the cough is sonorous and metallic; in diphtheria, when cough exists, its sound is soft and moist. In croup, the convalescence is generally uniform and easy; in diphtheria it is slow, interrupted, unreliable and complicated with the frequent sequelæ of the disease. In the worst forms of croup, where death does not take place, the patient is usually in perfect health in a few weeks. In bad cases of diphtheria, convalescence progresses slowly, through a period of many months; many cases extending thus through six, eight and twelve months; the patient even, at the end of this time, dying from asthenia. These recognised differences will, with care, always prevent a confounding of these two diseases. Yet, croup and diphtheria have been considered synonymous terms, by many of the best writers on these subjects. Brettonneau, Barthez, Jodin, Blache, Duché, and almost all of the French writers, regard these diseases as identical. The English and American authors usually regard the diseases as specific and entirely different. Dr. Cotting, of Roxbury, Mass., considers the diseases as being identical, and writes of them as "the membranous disease." Drs. Cheyne, Tweedie, Watson, Geddings, and a host of writers, have pointed out occasional differences between the two diseases. Accumulated testimony and facts have served to make this distinction broad, clear and abruptly defined. Diphtheria and croup being considered identical, by the writers in France, and giving rise to so much confusion and contradiction, is not more to be regretted, than the trouble that has arisen, from the views advocated by so many of our English and American authors, that diphtheria and scarlet fever are one and the same disease.

We propose to show the great difference that exists between these two diseases, and as we have done in regard to the other subjects, shall avoid the literature, based on the identity of these two diseases. It may be interesting, to quote the endless views offered, in this connection, by the hosts of English, French, American, and other authors, but such a style is not adapted to a paper of this kind.—Folios could easily be thus filled, and, when read, could only be regarded as so many literary curiosties. There is nothing practical in such a method of treating a subject. We prefer to avoid all theories and views, whether presented by societies, academies, or individuals, and to present facts, based on the oral and written testimony of the Profession. When these are given and read, each reader will be in a proper position to form his own conclusion. If the facts are sufficient, they must bring conviction; if not, theories and views can never be accepted, as a useful or efficient substitute.

We have endeavoured to accumulate all the facts in this connection, and, in their presentation, to establish a satisfactory and recognized difference, between these two diseases. We shall consider scarlet fever and scarlatina, as, for the most part, identical.

An attack of scarlet fever, as a rule, produces a decided immunity from future attacks of the same disease. An attack of diphtheria produces no such immunity. The first attack only of scarlet fever is usually severe; the second, when rarely occurring, is mild; a third is seldom seen. Diphtheria occurs repeatedly; there are many instances of a second and a third attack, and it has prevailed four times, with one individual, in one year. The succeeding attacks of diphtheria are usually more severe and malignant than the first. In scarlet fever, the heat is intense, at the outset, and subsides slowly; in diphtheria, it is very moderate and subsides quickly. In scarlet fever, the eruption is present, as the rule; in diphtheria, as a rule, it is absent. The rash, (when present), in diphtheria is of a uniform erythematous redness—without a punctuated appearance—appearing suddenly in patches. The rash, (almost invariably present), in scarlet fever is without a uniform erythematous redness—with a punctuated appearance—not appearing in patches. The exudation in diphtheria occurs in various localities, on almost all mucous surfaces not exposed to light, and is almost invariably present. The exudation in scarlet fever appears only in one locality; it never appears on other surfaces, while in diphtheria, it appears on the conjunctiva, in the meatus auditorious, in the vagina, etc. In scarlet fever, the exudation is not generally present, and if present, does not extend or show a disposition to extend. In diphtheria the exudation is generally present and does extend. In diphtheria, the tongue is coated white or yellow, and when this disappears, the tongue is not red or glossy, and does not show elevated papillæ. In scarlet fever, the coat on the tongue soon disappears, and then the tongue appears of a deep, glossy red; the papillæ are much elevated, and we have the "strawberry tongue," which is so characteristic of the disease. The convalescence from scarlet fever is generally rapid, when the throat has not suffered severely from ulceration, and the subsequent trouble is chiefly local. In diphtheria, convalescence is slow, unreliable, complicated and interrupted; if the throat has suffered severely, the after trouble is not local, but constitutional. The sequel of diphtheria is, as a rule, paralysis, and very rarely anasarca. The sequel of scarlet fever is anasarca, as a rule, and not paralysis. Hæmorrhage, in aggravated cases of diphtheria, is not uncommon; in the worst forms of scarlet fever, it is very rare. In diphtheria, death, in three-fourths of the cases, is produced by membranous laryngitis. In scarlet fever, death, from such a cause, is rare. Ulceration and sloughing of the mucous tissues is exceedingly uncommon in diphtheria; it is not uncommon in scarlet fever.

Scarlet fever attacks many who have had diphtheria; it is a predisposing cause of diphtheria. Scarlet fever tends to create an exemption from succeeding its attack. Diphtheria tends to create a susceptibility to its succeeding attack. We find that those who have had scarlet fever, have afterwards diphtheria, and those who have had diphtheria, have afterwards scarlet fever. If these are identical as is claimed, those having had scarlet fever (which, as a rule, secures exemption) should not have diphtheria, unless as an exception to the rule. If they are the same disease, those who have had diphtheria should not have scarlet fever. Shall the many cases (of both examples) that occur be claimed, as exceptions? It is frequently urged, that diphtheria is scarlet fever without the rash; and that in malignant cases of scarlet fever, the rash is often wanting. This last statement may be, at times, true, that, in malignant cases of scarlet fever, the rash is sometimes wanting; but scarlet fever, without the rash, is an exception to the rule, and in an epidemic of diphtheria, surely no one can be so irrational, as to claim, that we are having only exceptions to the scarlet fever rule, the scarlet fever without the rash; that the rule (the fever with the rash) has strangely become the exception, and the exception (the fever without the rash) the rule! Yet, if this exceedingly irrational claim is not made, it must be admitted, that diphtheria and scarlet fever are separate and distinct diseases. As Dr. Thayer justly says of an epidemic of diphtheria, in Albany, N. Y., "of 2,000 cases of diphtheria, not one was known to have a rash; such an epidemic of scarlet fever would be unprecedented." Were the 2,000 cases of diphtheria, but scarlet fever without the rash? Were they all exceptions to the rule in scarlet fever, or were they not examples of a separate and distinct disease?

Scarlet fever tends to produce a susceptibility to diphtheria, and an exemption from itself. "Willan met with only a single instance of a second attack of scarlet fever in 2,000 cases"—(Bateman's Synopsis.) Bouchut says he has never met with a single well-authenticated case. In forty-eight cases of diphtheria, "Dr. Ballard reports, that twelve had had scarlatina previously." Diphtheria does not tend to produce a susceptibility to scarlet fever, and does not produce an exemption from itself. Reverse this and we have the truth in regard to scarlet fever. Scarlet fever does tend to produce a susceptibility to diphtheria, and does produce an exemption from itself. Can exactly opposite laws be cited to prove the pathology of the same disease. It is more than probable, when a rash is manifested in diphtheria, that the disease is complicated with scarlet fever; and that in cases of genuine diphtheria, there is no rash whatever. In scarlet fever, albuminuria is a secondary symptom; it occurs only when the characteristic stage of the disease is past. In diphtheria, albuminuria is a primary symptom, and occurs chiefly in the early stages of the disease. The larynx is commonly invaded in diphtheria; it very rarely ever suffers in scarlet fever. The sequelæ of the two diseases, are very different. Anasarca is common after scarlet fever; it is very uncommon, after diphtheria. Paralysis is not uncommon after diphtheria, it is exceedingly uncommon after scarlet fever. Arthritis is not uncommon, after scarlet fever; it is almost unknown after diphtheria. Pericarditis is never seen after diphtheria; it is frequently seen after scarlet fever. Chorea is a sequel of scarlet fever; it is not known after diphtheria. In aggravated cases of scarlet fever, we have great cerebral disturbance, delirium, stupor and speedy death. In aggravated cases of diphtheria, we have nothing of this kind; the intellect is invariably undisturbed to the last. Scarlet fever is a protection from scarlet fever. Diphtheria is not a protection from diphtheria. Can such totally opposite laws and conditions all be true, in regard to the same disease?

We submit these facts, as being sufficient, we think, to prove that diphtheria and scarlet fever are distinct and separate diseases.

It will be observed, that we have not fortified the different positions assumed, by appropriate cases, and that we have not thus illustrated, from nature, the truth of the views advocated. In a paper of such a character as the present, we have not space to devote to such a purpose, and indeed, when the reader is assured, that such declarations are solely based on cases that have been seen by us, published by others, or made known to us, he does not require the record; he desires only its result and the truth, as established by it. That diphtheria constantly prevails, after scarlet fever, is well known; every Medical Journal will furnish cases in support of the assertion. Drs. West, Sanderson, Greenhow, Hart; Drs. Alonzo Clark, Jacobi, Orton, Hatch and many others, have either seen or published such cases; and indeed the examples of this kind are so numerous, as to almost make the record of every epidemic of diphtheria a record of this truth.

That scarlet fever prevails after diphtheria has not been so publicly and conspicuously known. Dr. Greenhow, of London, England, has published eleven cases of this kind. Dr. J. G. Orton, of Binghamton, N. Y., writes, that "many cases have occurred, with me, which established, beyond a doubt, that an attack of scarlet fever, accompanied with all of its characteristic symptoms, does not in the least protect an individual from an attack of diphtheria, and vice versa." (Autograph letter, Jan. 1861.) Dr. Hatch, of San Francisco, in a letter of December 1860, writes that he has had such cases. Dr. J. H. Barbour, of Falmouth, Ky., testifies as follows: "In my experience, patients that have had the scarlet fever, enjoy no immunity from diphtherite; nor do the diphtherite patients enjoy any immunity from scarlet fever." Dr. Edward Ballard, of Islington, England, reports a very interesting case of this kind. Dr. West, of England, furnishes a case also. We could furnish other examples, but the testimony given is already more than sufficient. The writings of almost every author, show that the blending of these two diseases in the same locality, and in the same person, is very common. This blending of diseases is so common, that, according to Willan, Sydenham was the first to mention the existence of scarlet fever, as a separate and distinct disease. (Willis first defined pertussis, etc.) Diphtheria and scarlet fever prevail simultaneously, in the same sections; they prevail simultaneously, in the same individual; they precede and succeed each other, in persons and places. Dr. Greenhow gives a list of over twenty places, in which these diseases prevailed simultaneously. Again, he gives instances, where one disease precedes or succeeds the other, respectively; where they would, at times, be blended. Dr. A. Clark, of New York, gives a case of a child dying, under his notice, who had, in succession, suffered from scarlet fever, measles and diphtheria. Dr. Jacobi states, that, in thirty-two days, he saw a child suffer from "scarlatina, urticaria, measles and varioloid." The blending of exanthematous diseases, however, is too well known to call attention to it in this connection. Though diphtheria cannot, of course, thus be classed, its being blended with these diseases is a truth, supported by the testimony of the most accurate and competent observers in the Profession, yet, with care, it can as easily be separated, pathologically, from these diseases, as these diseases always are from each other. Diphtheria can as well be diagnosticated from scarlet fever, as from erysipelas, croup, or the other diseases mentioned. That it is a distinct, separate and specific disease, the facts presented, we hope, sufficiently prove. It always requires much time to procure a satisfactory collection of efficient testimony and available facts, for the defence of any pathological statement; and such a statement should only be adopted when thus fortified. The most contradictory and confusing opinions relative to a disease, are always offered, until the accumulated records, experiences and statistics, in regard to it, furnish sufficient proof to establish, beyond a doubt, its true pathology. Only in such a way, can this ever be done, and if the records and testimony, now presented, are not sufficient, for this purpose, it is only in this way, that some future writer may hope to succeed.

Among the views of the pathology of diphtheria, may be mentioned those of M. M. Bouchut and Jodin. It is the opinion of M. Bouchut, that the disease is limited to the tonsils, and that, if these be ablated, the disease is removed. M. Jodin regards diphtheria and croup as the same disease, caused by the lodging of a peculiar parasite upon the fauces; that any treatment which destroys this, destroys the disease. M. Sée, in his comments upon Bouchut, states that as the disease is frequently manifested in the nose, he would ask whether Bouchut would advise the removal of this organ. But we will not attempt to give the heterogeneous opinions that have been presented. Such a catalogue would be endless, and even if a curiosity, could be neither important nor useful.

In concluding this portion of our essay, (devoted to the pathology of its subject,) we assert, that diphtheria is a separate, distinct and specific disease.

For the sake of convenience, and to present a clear summary of its pathology, we will (by tables) antagonise with diphtheria, the diseases with which it is so frequently confounded. These tables will show, at a glance, the difference between the pathology of diphtheria and the pathology of each one of these diseases—

Diphtheria.	*Pharyngitis.*
Membranous exudation seldom absent.	Membranous exudation seldom present.
Membranous exudation generally extends.	Membranous exudation does not extend.
Constitutional disturbance slight.	Constitutional disturbance severe.
Swelling of the lymphatic glands behind the jaw usually present.	Swelling of the lymphatic glands behind the jaw usually absent.
Fauces generally of a claret colour.	Fauces generally of a scarlet colour.
Deglutition exceptionally painful.	Deglutition invariably painful.
Fever slight and soon terminating.	Fever rather severe and not soon terminating.
Pulse seldom over 100.	Pulse seldom under 120.
Convalescence slow and frequently interrupted.	Convalescence prompt and not interrupted.
Complications frequent and sequelæ severe.	Complications infrequent and sequelæ absent.

Diphtheria.	*Pharyngitis.*
Prognosis frequently unfavourable.	Prognosis invariably favourable.
Mortality often severe.	Mortality never severe.
Laryngitis frequent.	Laryngitis infrequent.
Most often epidemic.	Most often sporadic.
Diagnosis complex.	Diagnosis simple.
Throat lesions not in proportion to severity of the disease.	Throat lesions always in proportion to the severity of the disease.

Diphtheria.	*Muguet.*
A disease of adults and children.	A disease chiefly of infants.
Commences in the fauces.	Commences in the mouth.
Exudation membranous and coriaceous.	Exudation non-membranous and flocculent.
Constitutional symptoms sometimes grave and never absent.	Constitutional symptoms never grave and frequently absent.
Generally epidemic.	Always sporadic.
Lymphatic glands behind the jaw very generally swollen.	Lymphatic glands behind the jaw never swollen.
Deglutition not much impaired and not painful.	Deglutition always painful and generally impaired.
Frequent complications and grave sequelæ.	No complications and no sequelæ.
Convalescence protracted and interrupted.	Convalescence neither protracted nor interrupted.
Prognosis often grave.	Prognosis never grave.
Mortality frequently severe.	Mortality never severe.
Diagnosis complex.	Diagnosis easy.

Diphtheria.	*Aphthous Inflammation of the Mouth.*
Exudation not follicular, vesicular, nor ulcerative; but pellicular.	Exudation follicular, vesicular, and ulcerative: not pellicular.
Lymphatic glands behind the jaw swollen.	Lymphatic glands behind the jaw not swollen.
Deglutition obstructed, but not painful.	Deglutition not obstructed, but painful.
Accompanied with fever.	Not accompanied with fever.
Complications frequent and sequelæ grave.	No complications and no sequelæ.
Prevails epidemically chiefly.	Prevails sporadically only.

Diphtheria.	*Aphthous Inflammation of the Mouth.*
Convalescence slow and interrupted.	Convalescence prompt and not interrupted.
Mortality frequently severe.	Mortality always absent.
Laryngitis frequent.	Laryngitis infrequent.
Prognosis often grave.	Prognosis never grave.
Diagnosis complex.	Diagnosis simple.

Diphtheria.	*Erysipelas.*
The fauces most generally suffer; there is, then, a membranous exudation of a progressive character exhibited.	The fauces most generally escape; if not, there is a simple pharyngitis, with no exudation, of a progressive character.
The fauces are most generally of claret colour.	The fauces are most generally of a scarlet colour.
Exudation is pellicular; ulceration rare.	Inflammation is follicular; ulceration being then common.
Cutaneous eruption the exception; rare.	Cutaneous eruption the rule; invariable.
Chiefly epidemic and seldom sporadic.	Chiefly sporadic and seldom epidemic.
Contagiousness seldom denied, out of America.	Contagiousness admitted only in England and America.
Constitutional disturbance seldom severe.	Constitutional disturbance seldom slight.
Eruption, when present, not marked by stiffness or swelling; is not continuous but appears in patches; has not an elevated margin; does not (when cutaneous) extend creepingly; is never deep-seated; not attended with bullæ; does not cause sloughing; very little desquamation.	Eruption always present, marked by stiffness and swelling; is continuous and not in patches; has quite an elevated margin; almost alway extends creepingly; is often deep-seated; often attended with bullæ; often causes sloughing; very general desquamation.
No cerebral disturbance, and, in bad cases, no delirium, stupor and coma.	Frequent cerebral disturbance, and, in bad cases, delirium, stupor and coma.
Attacks children chiefly.	Attacks adults chiefly.
Metastasis unknown.	Metastasis frequent.
Cerebral effusion never the cause of death.	Cerebral effusion often the cause of death.

Diphtheria.	*Erysipelas.*
Laryngitis common.	Laryngitis very rare.
Œdema of the glottis not a cause of death.	Œdema of the glottis one of the causes of death.
Typhoid symptoms (cerebral trouble, frequent pulse, subsultus tendinum, dry and brown tongue, diarrhœa, delirium, stupor and coma) never occur.	Typhoid symptoms (cerebral trouble, frequent pulse, subsultus tendinum, dry and brown tongue, diarrhœa, delirium, stupor and coma) frequently occur.
Mortality chiefly from membranous laryngitis.	Mortality never from membranous laryngitis.

Diphtheria.	*Croup.*
Disease of the blood; a toxæmia; a constitutional disease, with local manifestations.	Not a disease of the blood; a local disease, with constitutional manifestations.
Blood primarily affected; sometimes there are no local manifestations.	Blood, if at all, affected secondarily; local manifestations invariable.
First exhibits itself in the fauces, locally.	Locally, first exhibits itself in the trachea.
Commences always above the rima glottidis.	Commences always below the rima glottidis.
Does not extend below the rima glottidis, unless complicated with croup.	Never extends above the rima glottidis.
Asthenic disease; constitutional symptoms primary; local symptoms secondary.	Sthenic disease; local symptoms primary, and constitutional symptoms secondary.
Depression often manifested without dyspnœa.	Depression not often manifested before dyspnœa.
Contagious.	Not contagious.
Not peculiar to any age.	Peculiar to infancy and childhood.
Respiration not affected, unless the disease extends downwards; dyspnœa not a prominent symptom.	Impaired and difficult respiration always a prominent symptom; often the chief symptom.
No cough, unless croup supervenes.	Cough almost invariably present.
The membranous exudation of fibrin always commences above the rima glottidis.	The membranous exudation of albumen always commences below the rima glottidis.

Diphtheria.	*Croup.*
Exudation only extends below, as a complication.	Exudation never extends above.
Occasionally there is a cutaneous eruption.	There is never a cutaneous eruption.
Epidemic chiefly and seldom sporadic.	Sporadic and never epidemic.
Swelling of the lymphatic glands behind the jaw frequently occurs.	Swelling of the lymphatic glands behind the jaw never occurs.
Duration, one to three weeks, with sequelæ.	Duration never beyond the 11th day (Craigié); no sequelæ.
Exudation fibrinous.	Exudation albuminous.
Dyspnœa rare and, when present, uniform.	Dyspnœa common and invariably spasmodic.
Dyspnœa not produced or increased by deglutition.	Dyspnœa frequently caused and increased by deglutition.
Invades at all hours.	Invades chiefly at night.
Not caused by cold and dampness.	Generally caused by cold and dampness.
Prognosis generally good; mortality slight.	Prognosis grave; mortality severe.
Antiphlogistic treatment injurious.	Antiphlogistic treatment curative.
Tracheotomy contraïndicated and generally forbidden; no constitutional resiliency.	Tracheotomy indicated and advised; constitutional resiliency very decided.
Sequelæ; paralysis, strabismus, amaurosis, etc.	No sequelæ.
Fœtor of the breath constant and great.	Fœtor of the breath generally absent.
"Dissolution of the blood;" loss of its coägulating power.	"Dissolution of the blood" never seen; increase of its coägulating power.
Constitutional symptoms precede the local.	Local symptoms precede the constitutional.
Membranous exudation always present (as a rule) and always seen; present as the rule.	Membranous exudation seldom present and never seen; present as the exception.
Exudation thick, buff coloured; coriaceous.	Exudation thin; not buff coloured; not coriaceous.
Membrane renewed as the rule.	Membrane renewed as the exception.

Diphtheria.	*Croup.*
Death, when disease is uncomplicated, from asthenia.	Death from apnœa.
Sound of the cough sonorous and moist.	Sound of the cough sonorous and metallic.
Convalescence slow, unreliable, and complicated with the sequelæ of the disease; interrupted.	Convalescence easy and uniform; no sequelæ; uninterrupted.

Diphtheria.	*Scarlet Fever.*
One attack produces no immunity whatever from succeeding attacks.	One attack produces almost a complete immunity from succeeding attacks.
One attack not influencing the severity of the next; if at all, generally increases the severity of the second, third, or fourth attack.	One attack always influencing the severity of the next; second attack seldom seen and mild; third hardly known.
Heat, at the outset, very moderate and subsides quickly.	Heat, at the outset, very intense and subsides slowly.
Cutaneous eruption present, as the exception; of a uniform erythematous redness; without a punctuated appearance; appearing in patches.	Cutaneous eruption present, as the rule; not of a uniform erythematous redness; with a punctuated appearance; not appearing in patches.
Exudation appears in various localities; present as the rule.	Exudation appears only in one locality; present as the exception.
Tongue coated white or yellow; when this disappears, tongue is not red and glossy; papillæ not elevated.	Coat very light and soon disappears; tongue is then red and glossy; papillæ elevated; "strawberry tongue"
Convalescence slow, unreliable, complicated and interrupted; bears no proportion, in length, to severity of the throat lesions; trouble chiefly constitutional.	Convalescence (when the throat has not ulcerated) usually continuous and uniform; bears a marked proportion, in length, to severity of the throat lesions; trouble chiefly local.
Sequels—paralysis and very seldom anasarca.	Sequels—anasarca and very seldom paralysis.
Arthritis unknown; pericarditis never occurring; chorea never seen.	Arthritis often seen; pericarditis often occurring; chorea often seen.

Diphtheria.	*Scarlet Fever.*
Laryngitis frequent; "causes three-fourths of the deaths."	Laryngitis not seen; does not cause any deaths.
Ulceration and sloughing of the mucous surfaces not seen.	Ulceration and sloughing of the mucous surfaces often seen.
Creates a susceptibility to a second attack.	Creates an exemption, usually, from a second attack.
Albuminuria a primary symptom; occurs in the early stages.	Albuminuria a secondary symptom; occurs in the latter stages.
In aggravated cases, no cerebral disturbance; no delirium, no stupor, no coma; intelligence and consciousness unimpaired.	In aggravated cases, much cerebral disturbance; delirium, stupor and coma not uncommon; intelligence and consciousness often impaired.
Not peculiar to any age.	Chiefly peculiar to children.
Desquamation very slight always.	Desquamation extensive and general.
Deafness not caused by it.	Deafness a frequent sequel.
Strumous ulcers, boils, swelling of the cervical glands, inflammation of the eyes, diseases of the scalp, etc., never seen as the sequels of an attack.	Strumous ulcers, boils, swelling of the cervical glands, inflammation of the eyes; diseases of the scalp, etc., often seen as the sequels of an attack.

With these important facts placed prominently in antithesis, it is impossible to confound diphtheria with the diseases mentioned.

(TO BE CONTINUED.)

ECLECTIC DEPARTMENT.

I.—LECTURES ON THE RECENT ADVANCES OF OUR KNOWLEDGE IN THE DIAGNOSIS AND TREATMENT OF FUNCTIONAL AFFECTIONS.

By C. E. BROWN-SEQUARD, M. D., F. R. S., &c.

LECTURE II.

General Remarks on the Causes, Diagnosis, and Treatment of Functional Nervous Affections.

[CONTINUED.]

1st. *Mode of action of remedies.*—I have already spoken of the influence of remedies irritating the skin. I will now only discuss their mode of action after they have entered the blood. If we only had to know what is the effect caused by remedies on the brain, on the spinal cord, on the heart, &c., we might think that the extent of our knowledge of the mode of action of remedies is indeed considerable; but if we are not contented with this half-way knowledge, and wish to understand by what mechanism, by what direct or indirect influence, these effects are obtained, we find that very little is known as regards the real and ultimate mode of action of remedies. This is much to be lamented, as therapeutics will cease to be empirical only when this last kind of knowledge shall be fully obtained. We can, however, hope now that the time is not far distant when the ultimate mode of action of the most powerful remedies will be pretty well known. We shall then be enabled to employ them in cases that can really be benefited by them, and to avoid making use of them in cases in which we sometimes blindly order them, producing nothing but bad effects. Notwithstanding the great difficulties attending researches on the real mode of action of remedies, I have a great hope that much will soon be done in that important subject, and I ground my hope on the results already obtained by several experimenters on the mode of action of strychnine, of woorara, and a few other poisons and remedies. Another ground for my hope of great and rapid advances on this subject, is that the difficulties are becoming well known, and means of overcoming them are being found. Among the difficulties there are some depending on the number of parts on which the remedies might act to produce their effects, and others depending on the fact that physiologists and toxicologists, in making researches on remedies, have employed toxic doses. This last fact, is very unfortunate, as a number of remedies may have quite opposite actions in remedial and in toxic doses. As regards the number of parts on which remedies might act to produce their effects, I will show by a few examples what the difficulties are. Let us, for instance, try to find out on what part a remedy acts to produce the constriction of the pupil. It may do so either by paralysing or exciting certain parts of the nervous system, or of the iris. If it paralyses, it may be either a part of the spinal cord or medulla oblongata, from which originated the cervical sympathetic nerve, or that nerve itself in some part of its length from the eye to the spinal cord, or also the radiated or dilator muscular fibres of the iris. If its action takes place through an excitation, the part acted on may be the base of the brain, near the origin of the third pair of nerves, or that of the fifth pair of nerves; or it may be the iridian fibres of the third pair, or some fibres of the ophthalmic branch of the fifth pair of nerves; and it may be also the annular muscular fibres or sphincter of the iris. The other kind of difficulty I have mentioned, arises from the fact that a remedy can produce, with different doses, two opposite effects. Belladonna, for instance, by its influence on the bloodvessels of the spinal cord, will diminish sensibility, the reflex faculty, the tendency to convulsions, &c.; but if the dose is toxic, there will be a morbidly increased sensibility and reflex faculty, and convulsions will occur. In both cases probably there is at first, the same effect—i. e., a contraction of the blood-vessels of the spinal cord; but in the second case the contraction is so great that the muscular fibres of the bloodvessels are soon exhausted, and become paralysed, allowing a considerable congestion to take place in the spinal cord.* I will not say more on the real mode of action of remedies; but before passing to another subject, I may refer those persons who desire to enter into original researches, in this vast and fertile field of inquiry, to an admirable paper that may serve as a model for such researches; I mean the paper published by MM. Martin-Magron, and Buisson, in my Journal, on the Action of Strychnine, compared to that of Woorara (see *Journal de la Physiologie de l'Homme et des Animaux*, vol. ii., 1859, and vol. iii., 1860.)

2nd. *Analogies and differences of remedies.*—The more we progress in our knowledge of the mode of action of remedies, the more we find that *a priori* notions, only grounded on the chemical properties of substances, which we try as remedies, are very rarely verified. On the one hand, if we compare the effects of salts of the same base, or those of the same acid, we find that they vary extremely, even when the salts we compare are isomorphous. On the other hand, there are sets of remedies which have no chemical resemblance whatever, and which will, however, produce a great many similar effects. The recent advances of our knowledge, as regards the action of belladonna, the ergot of rye, and the bromide of potassium, afford an interesting illustration of this statement. These three remedies are very useful against incontinence of urine, seminal losses, satyriasis, hyperæsthesia (general or localized in the œsophagus, the neck of the uterus, the sphincters of the bladder and of the anus), epilepsy, the whooping cough, photophobia, a constriction of the pupil, a congestion of the spinal cord or its meninges, albuminuria, &c. There are, however, marked differences in the degree of remedial power of these remedies against those morbid states. For instance, the ergot of rye is more powerful than the others, against albuminuria and congestion of the spinal cord and its membranes; the bromide of potassium is more powerful than the others against epilepsy, satyriasis, &c.; and belladonna against the whooping-cough, hyperæsthesia, incontinence of urine, constriction of the pupil, photophobia, &c. Most of these remedial effects are evidently due to a contraction of bloodvessels, as are also other effects—such as the stoppage of hæmorrhages and of the mammary and salivary secretions produced by belladonna and the ergot of rye.[*]

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* When bloodvessels in the ear and face of a dog are made to contract considerably, by a very powerful galvanic excitation of the cervical sympathetic nerve, we find that after a short time they become exhausted and paralysed, and that, consequently, they dilate as much as when their motor nerve is divided and paralysed.

I will not say much as regards the differences of action of remedies, which chemistry might lead us to suppose, are more or less similar one to the other, in their remedial influence. The proofs in the dissimilarity of action of these substances are very abundant. I will only mention a few at random. If we compare the effects produced by the chlorides of a base, with those of an iodide, or a bromide of the same base, we find that they differ widely. If, on the other hand, we compare the chloride of barium with another chloride, we find that there is also between them a very great difference of action on the animal, or on the human economy. So it is, although to a less degree, with the bromide of potassium compared with the bromide of ammonium or the bromide of iron. *

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[*] I cannot say if the bromide of potassium would also be useful against a hæmorrhage; but this is exceedingly probable. For the sake of brevity, I have not given the names of the observers who have ascertained the usefulness of the three above-named remedies, in so many nervous and other morbid states or affections. I think, however, I should say: 1st, that the influence of the bromide of potassium against photophobia, has been particularly demonstrated by Messrs. Cambron and Rossignol, who use it as a collyrium, two parts for thirty of water; 2nd, that Prof. Von Willebrand has shown that the ergot of rye is, like belladonna, an excitant of the unstriped muscular fibres of the blood-vessels of the eye, and able consequently to diminish vascular congestion in that organ as in the spinal cord; 3rd, that Dr. Poyet and Dr. Commarmond have found that rye-bread, containing the ergot, like belladonna, stops the mammary secretion; 4th, that the researches of Dr. Addinell Hewson, made on seventy-eight boys, attacked with nocturnal involuntary emissions of urine, have given a decisive confirmation of the great therapeutic value of both the bromide of potassium and belladonna in that affection.

I have mentioned these facts to show that we are to look to experiments on animals, and to careful trials on man, to learn the physiological and therapeutical effects of remedies, and that chemical analogies cannot lead to any conclusion as regards the action of remedial substances.

3rd. *Modes of administration of remedies.*—One of the most important advances in therapeutics in our days, consists in the method of subcutaneous injections of remedies. Led by the idea of applying narcotics directly on nerves attacked with neuralgia, Dr. Alex. Wood, of Edinburgh, opened this new field in therapeutics in 1855. Since that time many practitioners have found that hypodermic injections are often the best mode of administration of remedies, not only against local affections, but also against every form of functional nervous complaints, and also against gout, rheumatism, fever and ague, &c. Much credit is due to Mr. Charles Hunter for his researches on this new therapeutical method. To him, more than to any other investigator, we owe the solid grounding, if not a complete demonstration, of these three propositions: 1. That equal effects follow distant and local injection in neuralgic cases. 2. That, by distant injections (in various places) the ill effects of repeated local injections are avoided. 3. That diseases can be treated with benefit by this plan, which are neither local nor neuralgic. This method of administering remedies, which is now very extensively used, has very great advantages over most of the other methods, I will only point out a few of these advantages:—1. Rapidity of effect. 2. Certainty that the remedy will not run the risk of being decomposed by food, secretions, or fæces, as may be the case in the digestive tube. 3. Possibility of introducing safely into the circulatory system a much larger dose than by other methods. This last advantage is the principal one in the use of the hypodermic method against neuralgia. This explains how neuralgic patients who had taken, apparently, large doses of narcotics by the mouth, with no permanent, and even no temporary marked benefit, are sometimes completely cured by one, or by a few hypodermic injections of narcotics—a fact which has been observed by Dr.

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* Dr. Chas. Bland Radcliffe has ascertained that the bromide of iron has no efficacy against epilepsy.

Alex. Wood, Dr. Courty, Dr. Béhier, Mr. Charles Hunter, myself, and many others.

I have ascertained that a subcutaneous injection can be as useful when made at a great distance from the place of a pain (whether neuralgic or inflammatory) as when made on that very place. Even in cases of traumatic neuralgia, I have seen, as Dr. Mason Warren has before me, that distant injections can be as good as local injections. Still, although, agreeing thus far with Mr. C. Hunter, I would recommend local injections, particularly in the cellular tissue, round the sheath of a superficial nerve, in cases of tetanus, hydrophobia, epilepsy, or any other neurose due to a wound, as there is no doubt that a little more of the narcotic will then be brought to the wounded or irritated nerve-fibres than when the injections are made in a distant part.

Six or seven years ago I was led by the knowledge of the antagonistic effects of morphia and atrophine on the brain, to inject these two agents together, so as to reap the benefit of the good effects of the one, added to those of the other against pain. The doses I at first employed, were half a grain of the sulphate of morphia to one-sixtieth of a grain of the sulphate of atropine. For reasons to be mentioned hereafter, I now employ from one-half to two-thirds of a grain of the sulphate of morphia, with one-twentieth or one-twenty-fifth of a grain of the sulphate of atropine. Great advantages are obtained by this combination ; 1, an addition of the good effects against pain of the two remedies ; 2, the possibility of employing safely, or at least without great cerebral disturbance, large doses of these narcotics.

The hypodermic mode of administration of remedies has already proved useful in cases of headache, vertigo, delirium, mania, hysteria, epilepsy, eclampsia, chorea, tetanus, neuralgia, and all kinds of pain, &c. As regards the substances employed, heretofore, in injections, besides the two principal, morphine and atropine, I will only name strychnine, veratine, narceine, and cyanhydric acid. This last remedy has especially been used, and with great benefit, by Dr. D. Macleod, in cases of acute and chronic mania, of puerperal or menstrual mania, of melancholia, and of epilepsy. He employed from two to six drops of Scheele's diluted acid with thirty drops of water. *

The interesting experiments of Dr. B. W. Richardson, by which he thought he had found a valuable mode of producing local anæsthesia, have led Dr. Aug. Waleer to a very important discovery. He has found, that certain substances, such as atropine, strychnine, morphine, and the tincture of aconite, when mixed with chloroform,

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* Specially beneficial in obstinate nausea.—ED.

and applied on the skin, are absorbed very rapidly; while if alcohol, instead of chloroform, is mixed with the above substances, absorption is much delayed, or even altogether prevented. The possibility of introducing, rapidly, into the blood, the most active narcotics and other remedies, without having to perform the operation of hypodermic injection, will prove of great value in those cases in which an operation, however slight, is much dreaded, and in cases in which it may be found necessary to keep the patient, for a long time, under the influence of the treatment (for instance, in tetanus, in hydrophobia, in persistent neuralgic pains, &c.)

Within the last ten or fifteen years, several facts of importance, as regards the selection of the proper surface of absorption of certain remedies have been clearly made out. I will only mention the following: 1. Prof. Bernard, and other observers, have ascertained that woorara is hardly absorbed by the mucous membranes of the mouth and stomach, while it is very quickly absorbed when put in contact with the subcutaneous cellular tissue. 2. Mr. W. S. Savory has ascertained that strychnine is absorbed so much quicker by the mucous membrane of the rectum than by the stomach, that a dose only one-fourth of another will act with greater energy in the rectum, than the much larger dose in the stomach.* 3. I have found that ointments of belladonna and opium, employed against neuralgic and other uterine pains, act with greater rapidity and much more benefit when pushed, up on a small lint, ball in the rectum than in the vagina, showing that absorption is more rapid by the mucous membrane of the rectum than by that of the vagina. Not long ago the method, consisting in applications of narcotics on the skin, deprived of its epidermis by a blister, was rather thrown into the shade, owing to the superiority of the hypodermic method. I protest, however, against the abandonment of a method which has the double advantage of counter-irritation and rapid absorption of a narcotic, and which may sometimes prove more useful than subcutaneous injections. In a case of crural neuralgia which had not been markedly benefited by hypodermic injections of morphia and atropine, I have obtained a quick amelioration, and ultimately a cure from a series of blisters (by the hartshorn ointment) and applications of sulphate of morphia on the denuded dermis.†

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* According to Charpentier, jun., hyoscyamine, daturine, and atropine produce their effects quicker after having been injected in the rectum, than by the hypodermic method. If so, this method will soon be abandoned. It is most likely, however, that the statement of Charpentier will not be confirmed.

† I do not speak of a new mode of administration of narcotics proposed by M. Lafargue [Bullet in de Therapeutique, Jan. 15th, 1851,] as I do not see any advantage in it over the hypodermic method. It consists in the introduction under the skin of small hard cylinders, composed of a mucilage, with a little powdered sugar and the usual dose of atropine, morphine, strychnine, veratrine, &c.

Of two other methods of administration, I will only say a few words. One of them is the inhalation of pulverized fluids; the other the use of medicated cigars or cigarettes. Hyoscyamus, stramonium, belladonna, and many other remedies may be employed with advantage, by one or other of these means, not only in asthma, but in whooping-cough, in laryngismus, and also in tetanus, in hysterical aphonia, &c.

4th. *Selection of remedies.*—The time is fast coming, when many complex remedies will be but seldom employed, and their active principles almost exclusively used. Belladonna, the preparations of which are so extremely variable in strength, and on which, therefore, we can place but little reliance, will be one of the first remedies abandoned, to be replaced by its active principle, which possesses all its physiological and therapeutic properties. But some complex remedies, such as opium, and particularly its tincture, will escape the fate of belladonna and others, owing to the fact that its effects cannot be fully obtained by the use of any of its great variety of active principles. Besides, in some remedies which seem to contain but one active remedial principle, there are physiological and therapeutical influences, which appear not to exist in the only yet known active principles. This is said to be the case with cantharidine, which does not seem to have the power of the tincture of cantharides on the genital organs. Amongst the active principles which are now replacing the complex substances from which they are extracted, I will name atropine, veratrine, the valerianic acid, digitaline, hyoscyamine, and even aconitine, notwithstanding the real worth of Fleming's tincture of aconite, and notwithstanding, also, the assertion (which my experience contradicts) of Schroff, that aconitine acts differently from aconite.

5th. *On antagonism between certain remedies.*—It would be out of place, in this lecture, to enter into details on this important subject. I cannot, however, avoid saying a few words, at least, on the antagonistic effects of remedies, which are frequently employed together in cases of functional nervous affections. I will first speak of the antagonistic properties of opium compared with belladonna, with stramonium, with alcohol, and with quinine. The antagonism of belladonna and opium has been known for centuries. Recently, however, more accurate notions have been obtained on this subject, owing particularly to the researches of Dr. C. C. Lee, Dr. W. F. Norris, Prof. Béhier, and Drs. S. W. Mitchell, Morehouse, and Keen. From the researches of these practitioners and experimenters, as well as from my own, it results that, besides the well-known antagonistic effects of these two remedies on the eye, there is a decided antagonism between them as regards their effects on the heart, on the brain, and on the spinal cord. In consequence of this antagonism, the dose of opium to produce sleep, ought to be greater than usual if belladonna is employed with it, and also the dose of belladonna against reflex paraplegia, ought to be greater than usual if the patient is also taking opium. I might say the same thing as regards the antagonism between opium and stramonium or hyoscyamus. * We owe to Dr Gubler, the discovery, that in many respects, and particularly as regards the action on the brain, quinine is antagonistic to opium, and that it is wrong to employ these two remedies together. Many facts tend to show, also, that alcohol is able to neutralize some of the properties of opium, and particularly its influence on the heart and skin. Of other remedies, often employed in neuroses, one of the most important—strychnine—is somewhat neutralized in its effects by aconite, camphor, and woorara.

The kind of antagonism I have spoken of, cannot be considered as due to a chemical neutralization. As regards this last kind of antagonism, it is important to know that the most powerful remedies we can employ against neuroses may be rendered inert by the chemical influence of certain substances, which might be employed with these remedies. We are indebted to Dr. A. Garrod, for the demonstration that alkalies, and particularly the liquor potassæ, destroy the active principles of belladonna, stramonium and henbane. Bouchardat has shown, that almost all, and perhaps all, the known alkaloids are precipitated by the iodide of potassium combined with iodine.

6th. *On doses of remedies.*—There are a few remarks, which deserve to be made under this head. The first one is, that doses are useless, and allow the nervous affection to take deeper root in the system ; and that we ought, therefore, particularly in epilepsy, in tetanus, in neuralgia, in reflex paralysis, in angina pectoris, in whooping-cough, &c., to give as large doses as can safely be borne. The second remark is, that, before employing large doses, especially of opium, we must carefully ascertain that the principal glands, and particularly the kidneys, are all right ; as if not so, an ordinarily safe dose might be found toxic. And another remark is, that in affections like tetanus, in which there is an antagonism between the complaint and the remedy, at the same time that we must be giving every hour or every half hour a fresh dose of the remedy, we must be carefully watching for the disappearance of the symptoms of the nervous affection, and their replacement by the symptoms of poisoning by the remedy. In a case, of which I know the details, Dr. P. G—— succeeded in obtaining the cessation of tetanic symptoms; but unfortunately, new doses of opium were given after that cessation, and the patient died of poisoning by opium.

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* Notwithstanding the number of cases of apparent cures of poisoning by opium, under a treatment by belladonna, I persist, as does also Bouchardat, in recommending that poisoning by opium be sought against by coffee, by keeping the patient awake by active and passive movements, and by making him walk if this is possible. The experiments of Onsum, of Camus, and my own show that death, by opium, takes place from the same dose, whether we employ belladonna or not. These experiments clearly establish that the toxic effects of these poisons do not neutralize each other.

XI. *On a few of the most important remedies employed against neuroses.*—It was my intention when beginning this lecture, to examine somewhat in detail, the therapeutic history of a great many remedies employed in functional nervous affections. Finding now, that this would lead me far beyond the ordinary limits of a lecture, I will postpone speaking of the principal remedies, until I have to mention their use in treating of the nervous complaints, in which they are usually employed. I cannot, however, leave this important subject without saying, at least, a few words on two remedies which are now, perhaps, the most frequently employed against neuroses.

Bromide of potassium.—This invaluable remedy, has been admirably studied by my friend, Dr. C. Huette, who showed how different it is from the iodide of potassium, by the properties it possesses, as well as by those it does not possess. The principal features of distinction between these remedies are, that the bromide of potassium is useless against syphilis; and that it has a power of inducing sleep, of producing amblyopia and deafness, and of diminishing the sensibility of the fauces, the urethra, the conjunctiva, and sometimes of all parts of the skin—a power which the iodide of potassium does not possess. We owe to Sir Chas. Locock the most important discovery of the usefulness of the bromide of potassium against epilepsy. Sir Charles, however, considered this remedy as being useful in those cases, where the affection is due to disturbances in the functions of the female genital organs. Dr. C. B. Radcliffe was one of the first who employed the bromide of potassium against all forms of epilepsy: but following the practice of Sir Charles Locock, he, as well as several other Physicians, gave a dose of that remedy, which was not large enough. My able colleague, Dr. J. S. Ramskill, and myself, after having tried the bromide of potassium in doses of ten or twelve grains three times a day (as Sir Charles Locock used to do), found that the dose ought to be raised to twenty grains or more, three times a day; and the beneficial effects of that dose, in epilepsy, soon became quite manifest. Much larger doses have recently been employed in France, but I doubt if more benefit has been obtained; while, on the other hand, I hear that more than one case of death has taken place, which seems to have been caused by the bromide of potassium. I can state that I have never seen any worse effect from a prolonged use of this remedy (for one or two years, with hardly an interruption), at an average dose of three scruples a day, than some sleepiness and dullness of intellect (in a great measure due to the nervous complaint,) and feeling of fatigue.

I have ascertained, as had been done also by several other Physicians, that the bromide of potassium, besides its great usefulness in epilepsy, is extremely valuable against nocturnal incontinence of urine, against seminal losses, against dysmenorrhœa, against satyriasis and nymphomania, and several other nervous affections coëxisting with, and increased by, a congestion of the base of the brain or of the spinal cord. I have also ascertained, that the usefulness of this remedy in epilepsy, and in other nervous complaints, particularly when allied with, or due to the congestion just spoken of, is notably increased by the addition of a dose of three or four grains of iodide of potassium to each dose of the bromide.

Opium.—The researches of Prof. Claude Bernard, on the alkaloids of opium, deserve to be placed among the most valuable recent advances of therapeutics. He has shown, by more decisive experiments than had been made before—1, that narcein is more soporific than morphine and codein; 2, that these two last alkaloids are able to induce convulsions, but much less than thebaine, papaverine, and narcotine; 3, that the sleep caused by narcein is much more profound than that produced by codein and even by morphine; 4, that the sleep produced by codein is not followed by heaviness, as is the sleep produced by narcein and morphine. Dr. Debout and Prof. Béhier have made, on themselves and on a number of patients, experiments showing the value of narcein as a somniferous agent. They consider it as superior to codein in that respect, but inferior to morphine. It is, however, more advantageous than this last alkaloid in this important particular, that it induces a lighter sleep, more refreshing, and not followed by heaviness or headache, as is often the sleep due to morphine. The dose of narcein is from half a grain to one grain, two or three times a day. I have not employed narcein yet; but I can say that codein, inferior as it is to morphine as regards its soporific virtue, is a most valuable hypnotic remedy. It is certainly very much less toxic in man, than it seems to be in animals, as I have often given it without any but good effects in doses three, four, or five times as great as the ordinary doses of morphine.

Of the exciting agents contained in opium, there is one which will probably be soon employed in medicine; it is thebaïne. This alkaloid, according to Bernard, causes violent convulsions; but it will be found a precious remedy if, as stated by Orfila, Magendie, and quite recently by Dr. Ozanam, it produces tetanic spasms chiefly in the arms.

II. Ozone: Its Relations to Health and Disease. An Essay which received the Fiske Fund Premium June, 1861. By E. S. Gaillard, M. D., of Richmond, Va.

[continued.]

So far as we are aware, and so far as we have been able to judge, by competent testimony on the subject, the ozonometer which we have constructed, is calculated to remove all of the past and present difficulties, in connection with this branch of the subject. It is very easily made, simple in its construction, and insuring uniformity in general results. There is a peculiar enthusiasm, which always characterizes the claims and writings of those who submit such offerings as contributory to science. This enthusiasm is the fruitful cause of endless errors, and can only be entirely destroyed by the caustic touch of analysis and criticism. We have endeavored to guard against it by presubmitting ourselves to such a remedy. Whilst the correspondence, in this connection, furnishes all the testimony we could desire, it cannot be submitted without a violation of good taste and essential etiquette. The ordinary rules of propriety, and a natural loathing for the practices of the empiric, induce its entire and total suppression; yet such is our desire to do all things proper, for the honest fortification of our position, in regard to this suggestion, that we will introduce an extract from a single letter:

"I must say, that the construction of a uniform scale of shades is very much to be desired, and I really do think that your method is a good one, because it is uniform, and the shades constant and easily attained. I congratulate you on your ingenuity and thought on this subject, and would advise, by all means, the adoption of your method of fixing the tints," &c.—(Autograph letter from Dr. Smallwood, Professor of Meteorology in the University of McGill College, Montreal, Canada East, February, 1861.)

With the materials used, observers must of necessity have ozonometers identical in shade and degree. The scale is the same as that hitherto adopted; it has been considered best not to change it. This scale is from zero, representing a perfect white, to degree ten (10), which indicates the deepest blue, caused by the decomposition of the iodide of potassium in the presence of starch. The chief difference in the construction of the two scales is, that the old scale is made arbitrarily, and the new by a regular rule; the chromatic intervals on the scale being equally and regularly divided. In the ozonoscope, ozone plays the part of an acid; in the ozonometer, we propose that, conversely, an acid shall play the part of ozone. The materials used are the iodide of potassium, nitric acid, and distilled water. The iodide of potassium can, with proper care, be now obtained in a state of purity. There can be no difficulty in this respect. The nitric acid can be obtained from any druggist, and, by a very simple process, reduced to the condition required. In the construction of the ozonometer, the nitric acid should be of exactly 1.42 specific gravity, and this can be insured by subjecting the acid to ebullition. As purchased, the acid will never be of greater specific gravity than 1.42, though it can be made at 1.5; yet this is seldom if ever done; and if so, the acid soon absorbs moisture and sinks to 1.42. As we have mentioned, though the acid can be made at 1.5, and may, at a few laboratories, be purchased of this strength, yet the acid of commerce does not, in specific gravity, exceed 1.42; it is frequently less than this, but, if this be the case, the same process (ebullition) will raise it to 1.42. In nitric acid at 1.42, there is, according to Dr. Ure's table, 60.572 of dry acid in 100 parts. The yellow colour is due to the presence of nitrous acid. If water is added to this mixture, the nitric oxide is decomposed, forming nitric acid and nitric oxide. The nitric oxide is given off in yellow fumes, and there is left a clear mixture of nitric acid and water perfectly white. We can, by adding water to any preparation of nitric acid, succeed in thus obtaining a clear and simple mixture of the nitric acid and water. Now there is this very interesting and important chemical peculiarity about nitric acid. If it be a concentrated and a heavy acid, its density is altered in ebullition, by the loss of more acid than water; if it be a weak acid, (acid and water,) its density is also altered, in ebullition, by the loss of more water than acid. Thus, in this process of ebullition, a strong acid loses acid and sinks to 1.42; a weak acid loses water and rises to 1.42; for at 248 F. it distills over, of this exact specific gravity.

We see thus that, by the simple process of ebullition, any possible preparation of nitric acid can be made to acquire this prescribed specific gravity; the strong acids rise to it, and to it the weak acids fall. There can, then, be no difficulty in regard to the acid. We have, then, iodide of potassium pure; nitric acid of exactly 1.42 specific gravity; and distilled water. Distilled water, for this purpose, should be pure; and to secure this, it should be tested. Pure distilled water should be transparent and colourless; it should not smell or taste of burnt oil; it should not change the colour of blue or red litmus paper. When slowly evaporated to dryness, in a platinum or glass capsule, it should leave no solid residue. It should not become turbid, when tested, separately, with solutions of nitrate of silver, nitrate of baryta, or oxalate of ammonia. It should be recollected that rain water, as containing nitric acid, should not be used as a substitute.

With a perfectly pure preparation of the iodide of potassium, with nitric acid of specific gravity 1.42, and with pure distilled water, we have the materials for constructing an ozonometer, securing all the necessary qualifications now desired. The first step, in this process, is to prepare a substitute for an ozonized atmosphere, and, in this, acid must play the part of ozone—℞. Aquæ dist., f ℥ vij.; acid. nitric. (1-42), f ℥ ss. Misce. Each quarter drachm, or fifteen minims, of this mixture will contain one minim of nitric acid. Into each of ten (10) clean glass vessels (wineglasses), pour one fluidounce of pure distilled water. Of the mixture of acid and water, just prepared, pour into the

1st glass	10 minims.		6th glass	35 minims.	
2d "	15	"	7th "	40	"
3d "	20	"	8th "	45	"
4th "	25	"	9th "	50	"
5th "	30	"	10th "	55	"

It will be observed that each of these glasses represents the atmosphere, in a certain ozonic condition; for the solution, in each glass, will produce the same change in an ozonoscope, as would an atmosphere containing a corresponding amount of ozone. Each glass, then, represents an atmosphere containing a certain amount of ozone, and each glass shows the relative action of such an atmosphere upon the ozonoscope. A perfect white being the zero of the ozonometer, the glass containing ten minims of acid and water in the solution, represents an atmosphere which would, in an ozonoscope, produce a colour indicated by the degree 1 (one) on the ozonometer—and so, respectively, with the other glasses; the last, containing fifty-five minims of acid and water in the solution, representing an atmosphere which would, to the ozonoscope, give hue or degree 10 (ten) of the ozonometer.

Into each of these glasses plunge an ozonoscope of cotton cloth, prepared as before mentioned. Each ozonoscope may be of convenient dimensions; three inches long and one inch wide will answer. Allow them to remain fifteen minutes each, and removing them in order, place them away to dry. These ozonoscopes should be numbered to correspond with the glasses in which they are placed. It is best that only one at a time should be used, and the entire process with this completed before another is attempted. As the hue of the ozonoscope is not permanent, it is necessary that the hue resulting from the action of the acidulated water, should be immediately transferred to paper. A few minutes before making this transfer of the hue to paper, the ozonoscope, about being so imitated, should be slightly dampened with a little distilled water. In making this chromatic imitation of the ozonoscopes, the same pigments should be adopted, as are now used in making this division arbitrarily, when preparing the ozonometer hitherto used—Prussian blue, neutral tint, India ink, &c. Any ordinary painter, or person of common ingenuity, will easily and readily succeed in making a perfect imitation of these ozonoscopes. It is certainly more easy to imitate these colours, than to create them, and instead of making a rude and inaccurate division of the chromatic interval, from white to blue, we have, in this series of imitations, a uniform and perfect ozonometer. We have not to make the chromatic divisions, for this is already done; we have not to create a chromatic degree, but are only called upon to imitate one. The only possible obstacle, in the formation of this ozonometer, is the imitation of the chromatic tints of the ozonoscopes; and if this prove an obstacle, how would it be exaggerated and increased, if, in place of imitating these hues, we had to first create them, and then to establish a uniform scale of degrees between them. It should be recollected, that it removes entirely all the uncertainties and dissimilarities which characterize the present ozonometers, and transforms the difficulties of chromatic creation, to those which may attend those of chromatic imitation. Such as it is, however, it is offered for consideration and adoption.

There need be no prescribed form or size for this ozonometer, but it will be found convenient to have the degrees, or chromatic divisions, as delineated on paper, about four inches long and one inch wide; the first division being marked 1, the second division 2 and so on, until the degees are all completed—zero being white. It should be observed here, that a given amount of ozone, or any acid, produces a greater effect on the ozonoscope, when this is dampened, than if it were dry. The ozonoscope placed in the glasses are therefore more deeply colored, than if the same amount of acidity acted upon them in a dry condition; though the hues actually produced, correspond in intensity with the hues that are actually produced by atmospheric ozone.

It is necessary that, in the use of the ozonoscope, it should be dampened both at the commencement and close of each experimen

The ozonoscopes moved by clock work, are kept always dampened by capillary action, or some other simple method.

There are some peculiarities which should be observed, in exposing ozonoscopes; as otherwise the results obtained and the deductions from them will be erroneous. We will state these as concisely as possible. The ozonoscope should be dampened at the commencement and close of each experiment or observation; it should not be placed where it would be affected by ammoniacal gases; all alkalies destroy the colour of the blue iodide of starch. After a thunder storm, in consequence of traces of nitric acid in the atmosphere, the ozonoscope manifests a deep blue colour; allowance should always be made for this. The ozonoscope should not be exposed to a strong current of air or wind, as this produces a sensible evaporation of the iodide of starch. When exposed at a great height in the atmosphere, as on a steeple, there will be a very slightly deeper colour than when exposed on the ground, at the same locality. Height gives a relative increase in the amount of ozone. Lastly, the ozonoscope should not be exposed in a chamber, or room occupied at any time during the twenty-four hours; for the circumstances attending habitation influence the formation of ozone and tend to its destruction. The meteorological relations of ozone have received close investigation, but without going into the details, specially interesting only to those making this their study, we will briefly state the results.

Winds influence ozone, according to the quarter from which they come. In America, according to careful investigation, Easterly and Southerly winds are attended with an increase of ozone; Westerly and Northerly winds seem to have no uniform or decided effect. In Europe, Westerly winds (as coming from the sea) always coincide with an increase in the amount of atmospheric ozone. Rain, hail and snow are marked by an increase of ozone: extreme cold also produces a similar effect. Dry air is unfavorable to the formation and existence of ozone; damp air exerts a contrary effect. Bœckel observes, that the rapid formation of vapor is attended with an increase of atmospheric ozone. Sunlight is a prime necessity in its formation. Temperature has its effect; as cold is favorable to the formation of ozone, so heat is inimical to its existence; at the degree of heat, before specified (268 F.), ozone is entirely destroyed.

These brief facts on this subject compiled from a mass of tables and statistics, exhibit all that is generally known of the meteorological relations of ozone. It is not yet finally determined at what period of the twenty-four hours the minima of ozone are exhibited. Bœckel, one of the best European authorities, states that, in Summer, the ozonometric mean is greater in the day; the ozonoscope being, in the day, exposed to two maxima of electricity. European writers on this subject are divided in their opinions and views; the law has yet to be established. Dr. Smallwood, of Montreal, concludes "that the ozonic periods correspond, in a striking degree, to the bi-daily variations of atmospheric humidity." The same authority quite recently suggests that "there are certain hours of increase and decrease, corresponding to the bi-daily variations of the barometer, and apparently with the variations of atmospheric electricity."—(Autograph letter, 1861.) Statistics alone, based on good and uniform instruments, can establish the law.

When considering the sources of ozone, it would seem reasonable to suppose that there should be but little of this agent manifested in city atmospheres; repeated experiments have proved that such is always the case. Here there is scarcely anything to generate ozone, and everything to consume it. In the country, or at sea, on the contrary, ozone is always relatively abundant. Ozonoscopes placed near a large sewer, in the city of Metz were discolored (and then slightly) but four times in six months. A series of experiments at Kœnigsburgh indicated similar results. Very interesting and important investigations have been instituted at Metz, Versailles, and Paris, for the purpose of determining the chief peculiarities of atmospheric air in inhabited places. The results are valuable and suggestive. Ozonoscopes placed in the halls and wards of hospitals gave no traces of ozone, whilst, placed on the exterior of the buildings, they manifested hues corresponding to degrees 7, 8, and even 10, of the ozonometric scale. These hospitals were in the most cleanly and perfect condition; well ventilated, and manifesting no perceptible odour, on entering them. Ozonoscopes were placed in the halls for the wounded, on the ground floor, and in tho rooms, where the windows were opened twice a day, and in which were placed not more than eighteen or twenty patients. In the wards for venereal and fever patients, where the same influences existed, ozonoscopes were also placed, the hygienic relations being equally good and the thermometer in all instances not exceeding 60 F. Rooms were also selected, for these experiments, where the windows were kept always (by day) open. The ozonoscopes, judiciously arranged in all of these places, remained in situ for fifteen days, and exhibited no change whatever; there being not even a trace of ozone present. In a large and well-ventilated ward, once occupied by scorbutics, but which had been vacated for a month, the ozonoscopes manifested hues similar to those given on the exterior of the building; 7, 8, and 10 of the ozonometer.

These experiments were conducted with ozonoscopes furnished by M. Schönbein, and of course were perfectly reliable. The experiments at Metz were conducted by M. Scoutetten; those at Versailles, by Bérigny; and those at Paris, by Silbermann. At the Conservatory of Arts and Sciences, at Paris, Silbermann obtained no traces of ozone; whilst Bérigny, at Versailles, with the same ozonoscopes, and at the same time, obtained hues corresponding to the highest degrees of the ozonometric scale.

These very interesting facts prove the effect of city atmospheres and the dwelling together of human beings, upon the formation and destruction of this vital and important hygienic agent. They suggest the imperative necessity of out-door existence; the danger of neglecting this; the unhealthiness of City atmospheres, and the true reason for the recuperative effect of country air. When Physicians have been asked the true cause of this invariable benefit from country air, the reply has usually been in praise of its purity, with a traditional allusion, perhaps, to the increased exhalation of oxygen there, from the growing surfaces of vegetation. The hitherto vague and unsatisfactory teachings of chemistry, in this connection, have been their only guides, and it is not surprising that the effect of all has been to make the subject as obscure and ill-defined to those asking the questions, as it has always really appeared to those undertaking to give the proper replies. Oxygen is really no purifier of the air, as decomposition is increased under its influences. We are now taught, that the chief reason for the value of country air is to be found in the constant existence there of this vital and indispensable agent—the very life and strength of the atmosphere to the invalid—the great purifier of nature.

The purifying properties of ozone are indeed marvellous. Scoutetten placed meat, already undergoing putrefaction, in ozonised air; "in five minutes it was completely disinfected." Being moved for a time, it again emitted an insufferable odour; reïmmursed in the ozonised air, it again became pure. Manure and the drainage from the amphitheatre of the Metz Hospital, the whole in a state of decomposition, were subjected to the influences of ozonised air, and in a few minutes entirely disinfected. Ozone was diffused through a large room, containing heaps of manure, in a disgustingly offensive condition; the odour was so immediately destroyed, as to surprise all who were present. Dr. Andrews, of Belfast, has recently presented to the British Association for the advancement of Science, a compound of chlorine and ozone, which proves to be a rapid disinfectant and deodourizer. Ozonised chlorine has been prepared, in the United States; it is, undoubtedly, very similar to the preparation presented by Dr. Andrews. M. Schönbein has demonstrated, that when putrefied organic matters are subjected to the actions of ozone the odour is destroyed, as long as the ozonoscope gives evidence of the presence of ozone; but as soon as the ozonoscope remains unaltered, the odour immediately returns. Nothing more conclusively, than these experiments, can demonstrate the highly disinfectant and deodourising properties of ozone.

Before dismissing this part of the subject, it should be stated, that there is a probability of error or inaccuracy in the experiments, tending to show that whilst ozone, in the atmosphere surrounding the hospital at Metz, gave abundant evidence of its presence by the ozonoscope, it seemed not to be present in the rooms of the hospital, where the windows were kept open during the day. Although these rooms were occupied, still, with the hygienic precautions mentioned, it is not reasonable to think that the air was so immediately and thoroughly vitiated, by its simple circulation through the rooms, as to lose all traces of ozone. Rooms that had been a month previously occupied by scorbutics, but then unoccupied, and with the windows always open, gave to the ozonoscopes hues corresponding to degrees 7, 8 and 10 of the ozonometer; we see thus, that simple circulation through a room is not sufficient to cause any diminution of ozone in atmospheric air. When windows are kept open all day, where cleanliness and ventilation are carefully observed, even if the rooms are occupied, circulation alone can scarcely rob such air of all its ozone. We allude to this, because the position taken, is somewhat an extreme one, and because the experiments, in this connection, are not sufficiently numerous to establish it conclusively. Dr. Gregory states, on this subject, that M. Schönbein "found that in storms, when the electric discharge took place at a great distance from where he was, he could often instantly detect ozone; although within four walls, and although previously the paper was quite unaffected." This statement of Dr. Gregory would go to prove, that simple circulation through the open rooms of an inhabited house does not render such atmosphere less vitalizing and healthy than that which circulates without the house; that it does not deprive it of its ozone. The experiment made with the atmosphere of the hospital ward, in which a month previously scorbutics were placed, but which was at the time of the experiment open and well ventilated, goes to show that circulation of the atmosphere, through rooms in this condition, does not even diminish the amount of its ozone. It would be more prudent to demand farther proof, before assuming that atmosphere, circulating through clean and well ventilated rooms, the windows of which are open all day, is deprived of its ozone from the simple fact that these rooms are occupied by a few persons.

These points are prominently mentioned and discussed, on account of the wide-spread error which prevails upon the subject, that the simple entrance of atmosphere into an inhabited house, deprives it of its ozone.

A chief part of Dr. Fountain's argument, to prove that ozone is nascent oxygen, consists of this undoubted fallacy, "that ozone is not found within doors, except in very slight traces, and generally not at all, however well ventilated the building may be." The experiments at the hospital at Metz, by M. Scoutetten, those at Versailles by Bérigny, and the declarations of M. Schönbein, on the authorities, we certainly think prove to us that this general impression is groundless, and such a statement an utter fallacy. Granting it to be true, however, it only proves how very poisonous the unventilated dwelling must be, when we see such results characterizing rooms that are ventilated; how dangerous to health the unwatched associating of human beings together must frequently be; and what a generator of disease and death all city atmospheres inevitably become.

The agency of ozone, in the prevention or production of disease, has been assailed on the ground that this agent is not present in sufficient quantity for accomplishing the results claimed. It is needless to say that these objections were only made before the great natural sources of ozone had been indicated, and that, at present, its existence, in quantities more than sufficient for the accomplishment of such results, is no longer denied. Seeing then, that it were more than folly to deny its diffusion in all atmospheres, and having shown the stupendous scale on which it is ever being generated, we will proceed to consider its interesting relations to the existence of disease; and first, its relations to malarial disease.

[TO BE CONTINUED.]

CLINICAL LECTURES.

CLINICAL NOTES OF CASES TREATED IN DIFFERENT HOSPITALS OF THE LATE CONFEDERATE STATES—CONTINUED. By JAMES M. HOLLOWAY, M. D., Professor of Physiology, University of Louisville, Ky. [From private Note-Book.]

Case 11.—C. S. Chimborazo Hospital, Division 2, Richmond.—W. N. W., 59th Alabama Regiment, Co. H.; aged 27 years; health good. Was wounded May 16, 1864, 6 A. M., at battle of Drewry's Bluff. Gun-shot; comminuting lower third left femur; ball lodged;

artery entire; also gun-shot in calf of right leg (flesh), ball ranging upward. Was conveyed to Hospital in this condition, and upon arrival, was very much prostrated by shock of injury and rough transportation. Made as comfortable as possible, and ordered stimulants.

May 19th, 2 P. M.—The left thigh was amputated at middle third, by circular method, by Assistant Surgeon Carleton; operation classed intermediary. Shock severe; reäction slow; cold applications to stump, and a full dose of morphia.

May 23d.—I saw the case for the first time this morning; pulse frequent and bounding; insomnia for forty hours; discharge from stump thin and sanious. Discontinue water dressings; acidulated drinks and morphia to induce sleep.

May 25th.—Insomnia continues; high fever; countenance anxious; very nervous. Ordered three grains Extract Hyoscyamus every two hours, which induced sleep after nine grains had been administered.

June 1st.—Condition somewhat improved; fever subsided; pulse still frequent and compressible; bowels moved; anterior skin flap has sloughed; granulations active at bottom of wound; end of bone visible, but not protruding; complains of severe lancinating pain on anterior aspect of right hip and thigh; wound in right leg inconsiderable. Ordered bitter tonics and nutritious diet; continue Ext. Hyoscyam., pro-re-nata.

June 3d.—Pulse unchanged; pain in limb still severe; sleep much disturbed; tenderness on pressure in right groin; discharge from stump copious and laudable; wounds dressed twice daily. Continue tonics and diet.

June 7th.—Has had diarrhœa for two days; somewhat restrained by enemata; weakening and losing flesh rapidly; bone protruding from retraction of soft parts; icteroid hue of skin; countenance anxious. Ordered inuction of fat; cod liver oil and whiskey, with egg and milk diet.

June 10th.—Transferred to another ward; bowels less active; hue of skin the same; pulse frequent and irritable; complains of soreness and rigidity of voluntary muscles; expression of countenance still anxious; colliquative sweats at night; mind lucid. Continue cod-liver oil and stimulants and nourishment.

June 13th.—Has been growing weaker, since last note, from excessive drainage of pus; frequent flushes of fever, followed by profuse sweating; delirious at times; bowels rather active; discharge from stump creamy, with large globules of oil floating upon surface; end of bone protruding and denuded; abscesses formed in subcutaneous cellular tissue of upper extremities.

June 16th.—Parotid abscess discovered this morning; muttering delirium; tongue dry and furred.

June 17th.—Had copious, consistent action this morning; discharge from stump profuse and creamy; the surface covered with oil globules. Died at 4 P. M., of pyæmia or hectic (?).

ORIGINAL CORRESPONDENCE.

Paris, August 29th, 1866.

Professor Pajot, whose remarkable talent for simplifying the difficult study of obstetrics, is so deservedly appreciated, has for some time past been advocating a process of his own invention, to be employed in cases of embryotomy, where the pelvis is unusually small. After having insisted upon this new plan, in his lectures last Winter, he published a pamphlet upon this interesting subject. As the method he proposes, is at the command of every one, and is really of great simplicity, I may be excused for briefly referring to its principal features: M. Pajot says, that embryotomy is always a difficult and laborious operation, the instrument of M. Dubois being employed, or the process of Robert Lee being called into service. To avoid these dangers, and at the same time offer, to every accoucheur, an easy and practical means of meeting the difficulties of the situation, he makes use of a silken cord, or what is still more convenient, an ordinary whip. With this simple apparatus, the fœtus is cut in twain, in less than a minute, without any fear of injuring the organs of the mother. In order not to multiply instruments, M. Charriére has made and shown me, an ingenious modification of the ordinary forceps, constructed according to M. Pajot's indications. A groove or channel is cut in the handle and hooked extremity of one of the branches of the forceps, so as to permit the passage of a portion of the whip cord, to the other end of which, is fastened a small leaden ball, destined, by its weight, to bring down the cord to the hand of the operator, thus forming a loop around the fœtal part. The hooked extremity of the branch of the forceps, which contains the groove, is placed on the neck of the fœtus, and even in cases of compression, a little pressure, with the hand or the instrument, permits the ball, and the cord attached to it, to descend, by paying out sections of the line which remains in the hands of the attendant. In this manner, it is easy to establish a powerful means for obtaining the section of the fœtal part, for when once the cord is in its place, the branch of the forceps, which served as a conductor, is withdrawn, and the two ends of the string, are passed through an ordinary speculum, so as to prevent injury to the vaginal parietes. An alternate motion is then communicated to the species of saw, above described, and in a few seconds the neck is severed. In the same way, it is possible to cut through the trunk; but here, owing to the greater density and thickness of the region, four or five minutes are required to complete the section. This new process M. Pajot considers advantageous in a double point of view—the means of obtaining success are everywhere to be met with, and the mother is no longer subjected to the risks of a dangerous and formidable operation.

The cholera, whose presence in this City was signaled last month, has continued its ravages, without, however, assuming very alarming proportions, though its character, this Summer, seems more malignant than that observed in last year's visitation. As usual, the questions of contagion, and non-contagion have given rise to animated discussions; but as yet, the matter remains undecided, the field for contradictory interpretations being of such easy access. I repeat a remark made on a former occasion, that if cholera be a contagious malady, then the separation of the cholera patients received by the administrators of our hospitals is incomplete, and tends to create a false feeling of security. Special wards are reserved for those labouring under the influence of the epidemic, but these wards form part of the same building, are used as a general hospital, with which the cholera wards, in many instances, communicate directly, and as the attaches, etc., circulate all through the building, it follows that the miasmata are disseminated to parts which, otherwise, might remain free from the general pernicious influence existing the cholera wards. Another defect, in a scientific point of view, results from this system of seclusion. The cholera patients are entrusted to the care of special Physicians, and it follows, that many are deprived of the advantage of studying the malady practically, owing to the small number of persons attached to these cholera services. A proof of this assertion is furnished by the paucity of documents, given to the medical world, by the School of Paris since last year's epidemic, when the system of naming special health attendants was put into practice in all the hospitals.

The report of the Society of Medicine of the hospitals, upon the diseases most prevalent, during the month of July, has been published, and I avail myself of this interesting document to make a few brief extracts, concerning the most noteworthy features presented by the epidemic this season. Save the accounts received from different Cities of France and surrounding States, there was no reason for apprehending the return of the disorder to Paris. During the last few months, the sanitary condition of the City had been excellent, and the small number of cases treated for affections of the bowels, had been especially remarked. This state of affairs continued, until the eve of the outbreak of the epidemic, and even at that moment, the number of persons suffering from diarrhœa was not unusually large. The report says that, at the St. Louis Hospital, the disease manifested itself very suddenly, in a lying-in ward. There is a sort of chain, connecting the dates on which the cholera appeared in the different charitable institutions for the poor, in this City. About the 12th July, Lariboisiére received one case; on the 12th, St. Louis had its turn. Those acquainted with the topography of Paris, will remark that these two institutions are situated near the Northern Railroad, which connects the Capital with Amiens, where the disease had played, and was still producing great havoc. On the 13th, patients were admitted into the hospital Cochin. On the 14th, the Hotel Dieu began admitting its quota. On the 15th, the disease showed itself at St. Eugénie. On the 17th, at Beaujon, five patients, who were being treated for other affections, were taken with cholera, without any warning by premonitory symptoms. On the 22d, the hospital for invalid men, had its first case, and the disorder afterwards gradually spread to other establishments. As a rule, this year, the disease, considered either in general or in individual instances, has evinced no precursory period. During the first fortnight, at the Maison de Santé, M. Bourdon observed several cases of almost instantaneous death, and in every one of these victims it was satisfactorily established, that there had been no diarrhœa previously. Here are M. Horteloup's statistics at the Hotel Dieu: Out of one hundred cholera patients, taken as they presented themselves, without, therefore, any intention of making the figures more gloomy, only forty-five had had diarrhœa, before the cramps and dejections—that is to say, more than fifty per cent. were stricken with the disease, without having been able to foresee its approach. This example suffices to show the malignant form of the epidemic, and it meets with confirmation in the reports sent in by several other hospitals. The only exception, is offered by Beaujon, where Frémy and Gubler remarked the presence of diarrhœa, before the characteristic manifestations of cholera. The number of persons admitted from the outside, was about twice that of those who were attacked in the wards, after having been admitted for other diseases. In some hospitals there was not a single patient suffering from the disorder contracted within the establishment. At the Hospital des Enfants, where this fact was obtained, M. Chauffard attributes the immunity to the selection of a special pavilion, situated near the front entrance of the institution, and consequently entirely isolated from the other parts of the building. At St. Eugénie, where it was impossible to procure the same strict seclusion, the contrary result was recorded. In other hospitals, the number of cases where the cholera declared itself in the wards devoted to ordinary diseases, assumed alarming proportions. The prognosis was less favourable than for those who had been admitted to be treated only for cholera. Here is a table, of comparative mortality, which results from the observations collected in all the hospitals:

Proportion of deaths in one hundred cases:

Cases declared in Hospital	50 to 60
Cases declared out of Hospital	33 to 43

The report specially indicates the important results, revealed by these figures, for if it is true, that those patients, who are attacked in the general wards, are debilitated by long suffering and previous diseases, it is no less certain, that they are surrounded by constant attention, and that they are put under treatment as soon as the premonitory symptoms manifest themselves. Numbers of those who apply for admission to wards for cholera, have neglected the precautions which might have averted the danger, and many of them are in bad health, besides frequently wanting even the necessaries of life; that is to say, they have presented the conditions most favourable to the inroads of the disease. The chief features which form the outline of the epidemic this Summer are its sudden appearance in our midst, at a time, when meteorological and other observations furnished no warning of its approach; the almost entire absence of premonitory symptoms; the rapid evolution of the phases of the malady, when once declared, and the great mortality observed among those patients who were stricken with cholera, after having been admitted into hospital for other diseases.

M. Chauffard has made the remark, that when children, under two years old, have a severe attack they generally die. When more advanced in years, the chances for a favourable termination are to be depended upon to a greater extent. In those cases where the attack followed admission, patients suffering from small-pox, pulmonary phthisis, typhoid fever, etc., and women in the condition of puerperality, suffered most from the scourge. Out of nine women, in a state of gestation, Horteloup, at the Hotel Dieu, observed abortion in eight, and a day or two after the premature delivery, seven of these women died.

The report mentions some peculiarities, in the therapeutical means employed, which I transmit. MM. Woltz and Delpech, have successfully made use of the tincture of cannabis indica, and the latter gentleman, in cases of obstinate collapse and great diarrhœa, gave injections with twenty grammes of alcohol (a grain is the equivalent of five centigrammes.) M. Hérard tried arsenious acid, given either in the form of pills, containing one or two centigrammes, or in that of a draught, with the same proportion of acid, without, however, obtaining much success. At Lariboisiére, M. Tardieu, in eight cases, where the sufferers were in their agony, injected, unsuccessfully, eight drops of a solution of sulphate of strychnia, in the proportion of one-thirtieth. By the same gentleman sulphuret of potassium was also tried, but with no better result. The water treatment was employed in some instances, and in one service, cold lotions were the only remedy used that proved of utility. M. Hérard injected a solution of salt and water into the veins four times, when there was no longer any hope of recovery from other means. In the first case, sixty-six grammes were introduced. The patient died three days after the injection had been made. In the second case, one hundred and eighty grammes were used in half an hour. The man seemed to awake from sleep, spoke, asked where he was, and humidity returned to his eyes. The thermometer in the axilla, before the injection, marked 36.2 centigrade degrees; afterwards it ascended to 37. This marked improvement was, however, only temporary, as two hours later the patient died, having again become drowsy and somnolent. In the third case, eleven hundred grammes were injected in one hour. The man was enabled to speak, and refused to sign a document his friends presented, the lips and eyes became natural, the skin was burning hot, the chest covered with a profuse perspiration, and the intense thirst had disappeared. As in the second observation, however, the somnolent state returned, and death occurred four hours after the injection, without having given rise to any noteworthy symptoms. In the fourth case, eight hundred grammes were employed. The patient was in agony. As had been remarked previously, he too, was enabled to speak; heat seemed to revive, but the man died an hour later, after having also relapsed into drowsiness, from which, however, it was possible, from time to time, to awaken him.

Two Physicians in Paris, MM. Gebért and Fritz, have fallen victims to the cholera. M. Gibért was a member of the Imperial Academy of Medicine, and formed part of the health service of the Hospital St. Louis. According to the custom usually followed in such cases, addresses were delivered by M. Tardieu, former Dean of the School of Medicine, on behalf of the Academy, and by M. Hardy, in the name of the Medical Board of the Hospital, to which the deceased had been attached. The last sad honors were paid to M. Fritz, by a large number of celebrities, among whom were remarked MM. Velpeau, Béhier, Barthez, Giraldés and Hussour, director of the hospitals of Paris.

For some time past, there has been a very animated discussion, at the Academy of Medicine, between MM. Jules Guérin and Velpeau, on the subcutaneous method, which the former has been energetically advocating for several years. It is known, that M. Guérin claims, that subcutaneous sections or operations, produce results entirely different from those which obtain, when the ordinary processes, at the command of surgery, are employed. M. Guérin says, that in subcutaneous wounds, there is reparation of the tissues, by elements of exactly the same nature, as those unavoidably destroyed by the operation; whereas, reparation does not occur in uncovered wounds; in this case, the elements are replaced by a cicatricial formation. Pending the discussion, the opinions of MM. Robin and Bouillaud became the subject of numerous arguments. Unfortunately, at an early period, the debate became personal, and the matter gave rise to abundant articles and letters in the Medical press. M. Després, an old pupil of M. Velpeau, and at present, Surgeon of the Hôpital de Sourcine, supplementary Professor at the School of Medicine, and one of the editors of the Gazette des Hôpitaux, espoused his former master's cause, with a great deal of warmth, and several epistles, in which personal feeling frequently found vent, were exchanged between MM. Guérin and Després. The opponent of the latter, on one occasion, pretended to furnish proofs of the contractile power enjoyed by tendons. This point was contested by M. Després, and M. Guérin's answer was couched in the form of a letter, offering to submit the question to the examination of a jury, composed of three physiologists to be named by the President of the Biological Society. The sum of one thousand francs, was to be placed at the disposition of the Academy of Medicine, by both adversaries, and an extraordinary prize on the "contractile power of tendons" was to be awarded to the successful competitor. M Després could not do otherwise than accept the proposition. Owing, however, to the hostile spirit manifested by the articles of this gentleman, in the columns of the Gazette des Hôpitaux, his conduct as a contributor was disavowed by M. Le Saurd, the chief editor, and, at last accounts, M. Després' connexion with that Journal had ceased. It is universally regretted, that sentiments, of a personal character, should have usurped a place in a question, which belongs solely to scientific investigation, and strictures have been passed upon what is termed a monnied manner of refuting objections against a doctrine which, in many points, M. Velpeau and the adversaries of M. Guérin consider theoretical. T. L.

LONDON, August, 1866.

TREATMENT OF OPERATION WOUNDS—CESAREAN SECTION WITH THE ETHER SPRAY—TESTIMONIAL TO DR. B. W. RICHARDSON—HIS VIEWS ON CHOLERA—NEW METHOD OF REDUCING DISLOCATIONS OF THE FEMUR.

The treatment of wounds, after operation, has lately been occupying the attention of Surgeons in England, and important modifications have been adopted at various hospitals and by particular Surgeons. Indeed, the old elaborate plan of applying successive layers of strapping and bandage after the sutures, is almost, if not quite, obsolete, and I think rightly so; but whether other innovations are equally justifiable is, I think, open to question. Mr. De Morgan has recently published a pamphlet on the use of a strong solution of chloride of zinc, as an application to operation wounds. He generally employs a solution containing forty grains to the ounce, and paints this upon the raw surface of a stump, or other wound, before bringing the edges together, and he gives a favorable account of the result of this treatment. It is difficult, however, to conceive the object with which this plan is adopted, for it cannot but increase the amount of destroyed tissue, which must be evacuated or absorbed before the wound can heal. Mr. De Morgan, however, is of opinion that a solution of the chloride of zinc, of the strength mentioned, does not act as a violent caustic. I have had the opportunity of watching the result of its application to the raw surfaces of amputation wounds in two cases, and in both it was followed by severe inflammatory fever, copious suppuration, and destruction of all union. In both these cases, chloroform was, practically, not administered, and the patients gave evidence of great suffering, while the solution was being applied, and its action was evidently caustic. In the cleansing of foul wounds, or bone cavities, it may probably be of considerable service, and in a case of tumour of the upper jaw, of questionable character, which was operated on a month ago, it was freely applied with apparent benefit.

Dr. Humphrey, of Cambridge, avoids covering his amputation wounds with any dressing, leaving them exposed to the air, and letting the scale, which naturally forms, act as the only protection to the wound, and Mr. Le Gros Clark leans to the same views. In the dressing of wounds, however, it is to you that we are looking for the results of a greater experience, and the Profession in Europe would gladly receive more systematic details from America of the results of particular plans adopted by different Surgeons and under different circumstances.

Another case of Cæsarian section has occurred—this time for cancer of the os uteri—in which Dr. Richardson's ether spray has been successfully employed, and the patient herself has, up to this time, progressed favourably. She merely felt "a little scratching once," during the operation, and the after pains and uterine contraction were just as usual after delivery, the uterus contracting perfectly, so as to close the wound and prevent hæmorrhage.

Both the Public and the Profession will hear with pleasure that it has been determined to present Dr. Richardson with a testimonial, and a meeting was held for that purpose last week, at which some of the most eminent members of the Profession attended. To Dr. Day is due the credit of organizing the scheme, but the idea originated in a conversation between Dr. Day and two strangers travelling together by rail. With characteristic unselfishness, Dr. Richardson has thrown the results of his past labours before the world, instead of accumulating material wealth by a monopoly, and it is proposed to present him with a substantial testimonial, to which both the Public and the Profession are invited to contribute. He has long been known as a careful and original investigator, and some of his works are deservedly esteemed. His first work which attracted public attention, was his essay on the coägulation of the blood, for which he obtained the Astley Cooper Prize of three hundred guineas in 1856, and although the views he then promulgated, as to the influence of ammonia, have been lately combatted by Mr. Lester, with great ingenuity, the work remains of considerable value. His remarks on the treatment of consumption, and especially of the phthisis of drunkards, are held in high esteem. He was one of the first to follow Dr. Bristowe in the investigation of clot formations in the heart before death; and in 1858 he produced his "Synthesis of Disease," in which he treated of the artificial production of endocarditis and cataract, by imitating the conditions on which he believes them to depend. He has also promoted the study of Medical History, by visiting most of the hospital towns of England, and giving very interesting accounts of their origin, history and present state. His late researches upon the production of anæsthesia by the evaporation of ether spray are well known, and he has supplemented them by adapting the instrument to the application of caustic and astringent sprays as hæmostatic agents. Last week he published a paper in the "Medical Times and Gazette," upon the pathology and treatment of cholera, and as this contains some original views, which are especially interesting at the present time, I will give you a brief outline of them.

He lays down three theorems:

1. That the symptoms of cholera are due to the separation of water from the albumen of the blood and tissues.

2. That the separation of the water is due rather to a local osmotic change in the alimentary canal, or to a general osmotic change in the body itself.

3. That the collapse is due not only to elimination of water, but also to removal by the water of the latent heat of the tissues.

He is inclined to think that this osmotic action is due to some active principle allied probably to the alkaloids.

The three principles of treatment he lays down are:

1. To arrest elimination; 2. To supply the heat of fluidity, or latent heat; 3. To restore the homogeneousness of the blood.

For the first object, he advocates the use of opium and astringents, dissenting from Dr. Geo. Johnson, who favours elimination by administering castor oil. To fulfil the second indication, he would prevent radiation by the use of warm coverings, hot baths, &c., while making foods and drinks the means of introducing heat artificially, and he proposes a special food, containing fat dissolved in albumen, together with carbonate and chloride of sodium.

To effect the third object, he advocates direct injection into the veins. He says: "The reason why certain immediate but not lasting benefits have followed these various injections (i. e., blood, water, milk, salines,) is, that they have been injected, after being heated up to blood heat; the caloric thus supplied, has been the underlying basis of their transient success." Hence, if success is to be more than temporary, we must look upon transfusion in a new light. *Blood* is not the proper fluid, even if defibrinated, because in cholera there is no deficiency of corpuscles or hæmatin; and a sufficient quantity of human blood is not obtainable. Milk, he says, is indifferent, because it does not combine with the blood in the tissues, and because it coägulates and readily decomposes. Saline solutions do not sustain, and they cause great shrinking of the corpuscles. Water does not sustain, dilutes too freely, and ultimately, as it cools, removes caloric from the structures in contact with it. He then proceeds to say: "I have thought that the fluid should contain digested and easily hydrating albumen, fatty substance that would solidify at a low temperature, a small quantity of saline matter, and a substance that would easily pick up the blood corpuscles when they have been partially deprived of fluid, and restore them to their natural form and character." The composition of the fluid he proposes is then given in full; it contains of white of egg four ounces by weight, common salt a drachm, carbonate of soda a scruple, clarified animal fat an ounce, pure glycerine two ounces, water enough to make a pint. The temperature at which it is injected may be as high as 106° F. The ordinary injecting syringe he discards as a bad instrument, and he proposes to displace it by a glass cylinder, with a transverse constriction, so that the passage from the upper to the lower part is narrowed. From the lower chamber runs a flexible tube, for insertion, by means of a quill or hollow probe into the vein. The upper part of the cylinder is provided with a stopper, through which a tube passes, connected with a small pair of hand bellows. Within the upper chamber of the cylinder is a small hollow ball, or safety valve regulator, which floats on the fluid in the cylinder, and allows of the escape of fluid from the lower chamber, until it reaches the level of the constriction, when all further passage of fluid is prevented. The flow of fluid along the escape tube can be checked at pleasure by a clip. The hand bellows are not used unless the fluid will not pass readily into the circulation, on raising the cylinder two or three feet above the part operated on; and, when used, they are of course very carefully manipulated. It is to be hoped, that before long we may see the effect of transfusion by this method fairly tested on a large scale, as there is ample opportunity for it during the present prevalence of cholera in the metropolis.*

A new method for the reduction of the femur, when dislocated backwards, which was, I believe, first employed in America, is meeting with great success in hospital practice. It is to be hoped, indeed, that the use of pulleys will be altogether superseded in the treatment of this injury, for with the application of power so enormous, and so little capable of accurate estimation, the remedy is often as disastrous as the disease itself.

The principle of the new method is that of leverage instead of traction, and the means adopted are, to bend the leg at the knee, and then carry the knee upwards to the abdomen; then taking the foot in one hand, and placing the other hand against the inside of the knee, you sway the knee rather forcibly outwards, carrying the foot at the same time across the opposite thigh. The head of the bone, at this time, often slips forward into its socket, but if it does not, you next bring the limb down again, still forcibly pressing the knee outwards, and this usually suffices. Manipulation at the same time, about the joint, may greatly facilitate reduction, but it is usually unnecessary. Here, then, the femur is used as a lever, by which the head of the bone is pushed forwards into its place, with far less injury to surrounding parts, and, what is also not without practical importance, with far less trouble to the operator.

In one of our provincial hospitals, a short time ago, a dislocation backwards of the femur was admitted, and attempts at reduction were made, for nearly two hours, by the old methods, with chloroform and pulleys, when, at the suggestion of the House Surgeon, the plan I have noticed was adopted, and the bone reduced in less than ten minutes.

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* During the present epidemic of cholera in Richmond, transfusion with saline solutions has been repeatedly tried, and though with apparent benefit, the cases have, in all instances, terminated fatally.—Ed.

PISA, ITALY, Sept. 1866.

Tuscany is geologically, the most interesting part of Italy. Notwithstanding the great antiquity of its civilization, its mineral wealth is, as yet, only half explored. Where indolence exceeds avidity, and where absence of want counterbalances love of gain, man is loth to conquer nature, or even to meet her half way and to receive the horn of plenty from her outstretched hand. The numerous veins of copper, the nuggets of manganese and the strata of coal which enrich this long trodden soil, are still obstinately waiting for the hand of the digger, and for the capital of the speculator. Two men, indeed, have tried their hand, and have become millionaires. But one of them is an Englishman, the other a Frenchman. It is different, however, where Nature's gifts are fluid or gaseous. The liquids, provided always they choose to come up to the surface spontaneously, are pretty well taken care of, and the great number of mineral springs of Tuscany, chalybeate, saline and sulphurous, have not been slow in becoming so many sources of health and wealth to a considerable number of people. Still more, perhaps, would this be the case, if the immense crowd of wealthy strangers, that flock to Italy every Winter, did not think it necessary to leave it again, in search of more Northern sanataria, just when the Italian spas are opened to the Public. Nor do I think that these Tuscan spas, however excellent they may be, can be considered as adequate substitutes for those of Germany. There is no Ems here, no Schwalbach, and even Montecatini cannot, in all cases, take the place of Carlsbad. But there are a few mineral springs here, which deserve more than a local celebrity, and above all, there is a thermal curiosity here, of which it may not be too much to say, that it is altogether unique. I speak of the thermal grotto of Monsummano, situate about half way between Florence and Lucca, at the Southern extremity of a spur of the Apennines, which extends from S. Marcello, in a S. S. W. direction, a little beyond the line of railroad which unites Lucca and Florence.

This grotto was discovered in 1849, by some quarrymen, on the Southern slope of a semi-detached peak called Monsummano Alto; yet, no farther notice was taken of it until 1852, when the owner of the ground, the well known Tuscan poet, Domenico Giusti, had a lateral aperture made in the rock, by which the grotto became at once an easily accessible curiosity, soon attracting crowds of visitors from the neighbouring villages, and, in a very short time, was enjoying a reputation, not only as a natural curiosity, or on account of the extraordinary beauty of its stalactites, but also as a sanatarium; a reputation the more genuine and legitimate, as it was gained without any professional puffing. Many sick people of the neighbourhood came, in utter disregard of the Doctor's diagnosis, to try the inhalations of the humid and warm air of the grotto, and this purely instinctive treatment led, in many cases, to such brilliant results, that in the following year, the owner of the grotto thought it worth his while to build a small house near its entrance, large enough for the accommodation of about thirty visitors. Since then, of course, the concourse of patients has been steadily increasing and their average number is now about 700 a year.

The interior of the rock, as far as it has been explored, consists of six compartments or chambers, two of which, may be considered as ante-chambers or tepidaria. A short staircase leads into the first tepidarium, which has a temperature of about 68° or 70° F. From this, a narrow vestibule leads into the second tepidarium, where the temperature rises to 77° F. A wooden door only separates this space from the first grotto. It is a vast hall, 125 feet long, about 40 wide and 15 feet high. Its ceiling and walls are covered with magnificent stalactites and stalagmites, but of its floor only one half is terra firma, the other half being occupied by a pond or lake, as it is called, of perfectly clear water.

To the right of this grotto, there is a small chamber, called Grotta Bianca, on account of the great whiteness and brilliancy of its stalactites, while to the left a large aperture leads into what we will call the second grotto, the dimensions of which do not differ much from those of the first. A lake called Lago Maggiore, covers almost the whole area of this chamber, leaving only a narrow passage on one side, which, on account of the great depth of the water, has been provided with a strong banister.

From the farthest extremity of this quay, a very long and tortuous passage leads into another grotto, apparently the last. Considering the grotto Bianca, as the third grotto, we will call this last grotto the fourth. It, too, has its lake, and its stalactites are even finer than those of the first and second chamber. It communicates with the grotto Bianca, through a narrow aperture.

In 1853, the temperature of these grottoes, was determined by Signor Targioni Tozzetti, who found the following numbers:

2d Tepidarium	27°.5 Cent.	81°.5 Fah.
1st Chamber	30°.5 C.	87° F.
2d Chamber	31°.25 C.	88°.5 F.
3d Chamber	33°.75 C.	93° F.
4th Chamber	35°.5 to 36°.25 C.	96° to 97.75 F.

Ten years later, a French *savant*, M. Grandeau, who has written an excellent monograph on the grotto of Monsummano, found the following numbers:

2d Tepidarium	25° Cent.	77° Fah.
1st Chamber	28 to 28°.5 C.	82°.5 to 83°.5 F.
2d Chamber	28°.5 C.	83°.5 F.
3d Chamber	31° to 32 C.	88° to 90° F.
4th Chamber	32° C.	90° F.

The discrepancy of these results may be due—and this is an important point—either to a gradual decrease of temperature since the first opening of the grottoes, or to errors of observation. M. Grandeau, who is justly proud of the accuracy of his observation, suspects those of his predecessor. Nevertheless, it is more than probable, that the secular temperature of a grotto and its parietes, should suffer a certain diminution after its first unclosing. If the supply of caloric be continuous, this diminution need not be progressive, and we may not unreasonably suppose that the temperature of the grotto of Monsummano has already reached its minimum. Further observations have, indeed, shown that the temperature of the outer air and the change of the season, have no longer any perceptible influence on the temperature of the grotto. Long continued rain produces sometimes a considerable rise of the waters in the grotto, but no decrease in their temperature. On the contrary, the lakes of the first two chambers were found to be rather warmer under such circumstances, and as the air has very nearly the same temperature as the waters, it is reasonable to suppose that the air of the grotto receives its warmth from the water, or rather through it.

The air of the grotto is not chemically equal to atmospheric air. A long series of careful analyses has given the following results:

The air of the	1st Chamber,	2d Chamber,	3d Chamber,	4th Chamber,
contained Oxygen	20.66	20.64	20.00	20.58
Nitrogen	79.34	79.36	77.75	79.42
Carbonic acid		——	2.25	——

The air, therefore, shows everywhere a relative excess of nitrogen, or, more correctly speaking, an absolute deficiency of oxygen. That carbonic acid gas should be found only in the third chamber, is the more remarkable, as the air of the grotto is constantly, although slowly, renewed by two currents of air passing from the first chamber, through the second, and respectively through the third, into the fourth chamber. The circumstance that a prolonged sojourn of several scores of people never affected the respirability of the air in the grotto, showed *a priori* the probable existence of some kind of spontaneous ventilation. Subsequently, it was found that when Bengal lights were burned, both in the second and third chambers, the smoke and smell of the gunpowder never entered into the first chamber, but gradually collected in the fourth, from which it finally disappeared at the end of three hours. This showed the existence, as well as the direction and force of the ventilating current. It also showed, that the fourth grotto cannot be the last, but must communicate, through apertures, not yet discovered, with a series of other grottoes. As the ventilating current is evidently fed by the outer air, it is probable, that before the discovery of the grotto, its air was still more deficient in oxygen than it is now. The subterraneous combustion, which alone can explain the constant evolution of heat, and the absorption of oxygen, must still be powerful enough to neutralize the cooling and oxygenating action of the atmospheric current.

The waters of the grotto have not yet been tried, as a therapeutic agent. Their quantitative analysis, gives variable results, but on an average, 9.14 per cent. of solid matter, consisting chiefly of sulphate and carbonate of lime, with traces of chloride of sodium, magnesia, silica, iron and alum. Moreover, one litre of water yields 126 cubic centimetres of gases, viz: 2 of oxygen, 15 of nitrogen and 109 of carbonic acid. The action of these waters, is, as might be expected, deleterious to all animal and vegetable life. The microscope shows neither infusoria nor cryptogamous plants, and fishes and amphibia, when put into these waters, die after a very short time. The almost entire absence of oxygen explains this.

But it is not easy to explain the same absence of organic life, in the dry parts of the grotto. The human lung breathes in its air, with the most perfect ease—nay, almost with greater ease, than in the open air. Pigeons and cats, when put into the grotto, show no sign of suffering or discomfort—not even in the third grotto, where the excess of carbonic acid gas might be supposed to be prejudicial to animals of low stature; and, lastly, a candle burns in the grotto with unimpaired lustre, and according to some observers, even with a slightly increased brilliancy. It is reasonable, therefore, to ascribe the absence of organic life to the complete darkness of the grotto, which is never relieved, even by the faintest ray of daylight.

The foregoing data will easily explain the physiological effects produced by a more or less protracted stay in the grotto, or, to speak more scientifically, by the action of its air on the lungs and the skin.

The first and also the principal effect is a copious perspiration. A few minutes stay in the grotto is sufficient to produce it. It is produced invariably, infallibly, in every individual, of whatever age or constitution he may be. It is accompanied by a sensation of well being, without any lassitude, oppression, excitement, or headache. It is equally strong during the whole stay in the grotto. It is as strong and as copious on the tenth visit, as it was during the first, and even in those who suffer from constitutional disposition to perspire, the perspiration produced by the air of the grotto, is always accompanied by the same extraordinary sensation of well-being.

The circulation is slightly accelerated. A five hours' stay in the grotto raised the number of pulsations from 70 to 80, and once from 75 to 93. But the breathing does not seem to be affected by this; nor is digestion interfered with. Although it has become customary for patients to visit the grotto in the morning before breakfast, it is nevertheless certain, that it can be visited, with the most perfect impunity, at any other time, and even immediately after a copious meal; and this explains the absence of all accidents, no case of cerebral congestion, of fainting, or of any other sudden disorder having occurred since the first opening of the grotto, although more than 10,000 patients have frequented it.

It must, however, be admitted, that a very long stay in the grotto, of several hours, is apt to produce a certain nervous excitement, inducing sleeplessness and, in women, hysterical symptoms.

It is difficult to say, whether the therapeutic use of the grotto should be considered as a bath or an inhalation. One enters the grotto in a kind of loose bathing costume, so that undoubtedly the whole surface of the skin is under the immediate action of the grotto air. Yet one might ask whether the temperature of this air is sufficiently high to account for the profuse perspiration, so infallibly produced by it. Most certainly it is not. The air of this grotto must, therefore, be considered as a complex therapeutic agent, influencing, in a specific manner, and much more by its chemical composition, than by its temperature, the blood through the lungs and the nerves through the skin.

From this we may conclude, *a priori*, (which is also completely borne out by a twelve years' experience,) that this therapeutic agent must correspond to a vast number of indications, and that it is counterïndicated only by a nervous or hysterical disposition. Many of the cures effected by it are very remarkable. The various forms of rheumatism and arthritic complaints are of course those most successfully combatted, by this treatment. Neuralgia, deafness, paralysis, inveterate syphilis, relaxed throat, asthma, and many metastatic complaints, due to a sudden suppression of herpetic and other chronic eruptions, have in a great number of cases, yielded to a week's or a fortnight's treatment at Monsummano. The same may be said, according to the statistics of the place, of malarial fever, with subsequent enlargement of the spleen; of ischuria, of dysmenorrhœa, and of colic produced by renal or bilious calculi.—In these last cases, the effect of the grotto should be enhanced and completed by a subsequent use of alkaline waters. I do not know whether the grotto has been tried against diabetes or against Bright's disease or against incipient phthisis. It would certainly be rational to do so. That cases of acute inflammatory diseases are excluded, is natural; but subacute bronchitis, with profuse expectoration and violent cough, has been treated at the grotto, with the promptest and most complete success.

I must add, that each visit to the grotto, according to the prescription of the local Physician, lasts from half an hour to one hour and a half, and that ten or fifteen visits are generally deemed a sufficient treatment. The accommodation at the hotel is tolerable and not expensive. But what is *one* hotel at such a place. A whole town should spring up around it, and thousands of visitors should flock to it from the old and the new world. The grotto of Monsummano cannot be too highly recommended to the Public or to its professional advisers.

In my next, I will present two important inventions or discoveries, made during the late Venetian war, and suggested by its exigencies, viz., a new torniquet for compressing arteries, and a new hæmostatic liquid of remarkable efficiency.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

BIOGRAPHICAL SKETCHES OF DISTINGUISHED NEW YORK SURGEONS. By SAMUEL W. FRANCIS, A. M., M. D., Fellow of the New York Academy of Medicine. John Bradburn. New York. 1866.

In examining this Work, the reader is at once impressed with a double surprise; first, that any one could be satisfied to expend his time and energies in such an employment; and secondly, that so many respectable gentlemen have consented to be thus introduced to the Professional Public. The whole subject of contemporaneous biography has been so often discussed, satirized and condemned by others, that it will not be here reviewed; but the history of such literature, and the comments inseparable from it, may be appropriately commended, as profitable reading, both to the biographer and those who have placed their public and private records in his possession. The suppression of well known personal and professional defects and the exaggeration of a few virtues is the invariable history of all such attempts, and however pleasing such a record may be to the distinguished subject or his friends, it is impossible that any one can suppose the Public to be as easily amused, or in any degree deceived; that it can accept such collections as biographies.

Were the whole truth told, it is not improbable that this small volume would be of even smaller dimensions, for there are not many sufficiently pure or distinguished, who would be willing to endure such an ordeal. In the eyes of the law, suppression and perversion of the truth, are equally culpable, and there is no reason why this ruling of jurisprudence should not be accepted as the ethics of literature. No one pretends, that, in biographies of the living, the truth is not suppressed, or that it is given as readily, as when the reader is asked and expected to draw the mantle of charity, over the faults and vices of the dead. The witness who suppresses the truth, in the halls of justice, is discredited and rejected, and there is no reason why a different rule should be adopted in the halls of criticism. Among the many considerations that may be given, these, it is held, are quite sufficient to justify any one in withholding his past record from the pen of the contemporaneous biographer As grave as are the objections which should influence all men in becoming the subjects of such compositions, it is evident that objections are infinitely increased, when made applicable to the biographer. Few writers are willing to eulogize the distinguished living, in terms commensurate with their admitted merits, and still fewer are disposed to make their faults the target, for the unwelcome arrows of criticism; yet without such a course, there can be no biography that is either just or true. When death, however, places appropriately in the hands of the biographer the records of life, these difficulties and objections no longer embarrass praise or give personality to criticism. The grave protects just eulogy from the charge of base sycophancy, and plucks the attributed sting of malice from the severest censure. This question, however, as has been already said, will not be here discussed; it is settled in the minds of most men, and it is only surprising that there are yet a few exceptions to the rule. In contemporaneous biographies, reputations are never increased; they are seldom sustained, and most generally they are injured. These admitted truths become impressively evident, in the analysis of the Work, that has just been carefully examined. Those really "distinguished," were not less so, before its publication, or more so since that period in medical literature Those not now or previously "distinguished," would at least have been, at present, more esteemed and respected if they had evinced more prudence and less vanity.

The author states that he is "what Terence might call a *homunculus*," or little man, and though the Profession and general Public have a higher and more charitable estimate of his status, it is fair to say, that this cannot long continue, unless he attempts the cultivation of some other field of Medical literature. No one can do himself justice in the employment selected by the author, and it is both agreeable and just to say, that he is supposed to be capable of placing himself in far higher and more satisfactory relations with the Professional Public. There was an intention of furnishing examples of the style and material of the author's composition, but on reflection, it is believed that such a course would not be advantageous either to himself, the characters described, or to the reader.

There is, in each biography, an inexplicable anxiety on the part of the author to learn the habits of his illustrious subject, in regard to the use of tobacco, and the use or abuse of the pipe or quid, seems, for the first time in literature, to be accepted as a Shiboleth of moral and Professional distinction. The recent investigations in regard to the effects of tobacco are interesting, but what interest the reader of this little brochure can be supposed to feel, as to whether Dr. A. smokes or Dr. B. chews, is somewhat incomprehensible.

The Work is neatly bound and fairly printed, though the paper is objectionable.

CATALOGUE OF THE UNIVERSITY OF VIRGINIA. Session of 1865–'66.

By reference to this Catalogue, it seems that, during the last Session, there have been about thirty-five Students in attendance in the Medical Department of the University.

It is to be regretted, that there are only four Professorships attached to this School. It is claimed, that this number of teachers can, in nine months, accomplish the labour performed by six at other Colleges, in five months. Without calling attention to the mathematical non-sequitur of this proposition, it may be justly said (even assuming the statement made to be correct) that in all first-class schools, there are now more than six Professors, not including many who, as assistants and junior lecturers, perform duties entirely similar. In most first-class Medical schools, there are now from eight to nine Professors, with an adjunct Professor attached to each Chair, all of these being arduously engaged. There is, however, another great objection to having but four teachers in any Medical School, and this consists in the self-evident fact, that each Professor must necessarily teach two or more branches. It is a hard-earned distinction to teach one properly, and it is absolutely necessary (with the rapid changes and improvements now evident in the science of Medicine) that all the time, at the command of one occupying the responsible duties of a teacher, should be faithfully given to the efficient acquirement of the knowledge specially connected with his Chair. To teach one branch, as well as may be practicable with the individual, this course is actually necessary and all instruction in schools, is based upon the assumed guarantee, that the teacher gives to the student, all the appropriate information that he can possibly acquire. This essential constitutes one of the elements of public faith in a teacher, and it is evident, that just in proportion as he is allowed to give the proper time to his studies, will he be enabled to make a proper return for the faith reposed in him. If it is distinction to teach one branch of Medicine properly, what is logically the result, when any one, however naturally able, attempts to teach two? As most Schools have extended the period of their terms, this School should, in accordance with its theory, extend the period at present adopted, for even assuming, that four teachers could, in nine months, discharge the labour imposed upon six, in four or five months, it does not require argument to show how impossible this becomes, when competing Schools not only lengthen their terms, but add fifty per cent. to the number of their teachers. Even assuming then the correctness of the theory urged by the University, it is now obligatory upon the Trustees to give those equal advantages that have been always hitherto claimed; denying, however, the correctness of the theory advanced, the time has fully arrived, when to give Students even a fair opportunity, the number of teachers should be conspicuously increased. The claim, that four teachers, of any possible attainments, can, in nine months, afford the same advantages in instruction, that are given by eight or nine teachers, in five or six months, is so entirely untenable, that any argument upon the subject would be superfluous. Even were it possible however, for four teachers to accomplish this, it is to be borne in mind, that, at the expiration of the nine months, at the

University, the Student becomes a candidate for his degree, whereas, in other schools, he is required to again undergo the same amount of pupilage, before he can present himself for the final examination. The comparison is, of course, made between the University and those prominent schools, in which from seven to ten Professors, with their adjuncts, are engaged, for it is not to be supposed, that the University School would be content to have the comparison instituted, with less prominent and distinguished Institutions. It has, with entire justice, long claimed to be one of the best Medical Schools in America, and unless this well supported claim is to be unresistingly abandoned, an increase of its Faculty can not be safely deferred.

These remarks apply, as is evident, to the policy adopted in regard to the number of teachers. In regard to the length of term, it may be well to state, that though the single term of nine months, adopted by the University, once equalled, in extent, the double terms of four and a half months (each) enforced by many American Medical Colleges, this equality no longer exists, for most Schools have adopted the five months' term; the largest American School (University of Michigan) has a term of six months, and the Humboldt Medical College, of St. Louis, Mo., insists upon a term of seven months. If then an increase, in the number of teachers, at the University is required, by contemporaneous improvements, in the best Medical Schools, it is equally evident, that an addition is to be made to the length of its term, if it intends, as heretofore, to compete successfully for the patronage of those who have nourished and sustained it.

The entire want of clinical advantages at this School, is to be deeply regretted, for these advantages cannot be supplied. If Students were only allowed to take a primary degree here, this ostensible defect would be a great advantage, for nothing can be more illogical, injudicious and injurious, than to claim clinical facilities, as an inducement for "first-course" Students, or as an advantage to them. That they are really injurious to such Students, no one of candour or good judgment can deny. If all of the graduates of the University went to such Colleges, subsequently, as afforded these advantages, the absence of clinical facilities would be immaterial, if not beneficial, but it is not to be denied, that all of those who graduate at this School and then enter, at once, into active Professional life, have lost the great aid and power, that clinical demonstration, upon those sufficiently educated, universally confers.

The reasons given, in the catalogue, for not insisting upon a certain degree of antecedent preparation, at the period of matriculation, are not well sustained. To defend the adoption of an objectionable principle, upon the basis that commendable principles elsewhere advocated, are not observed, is certainly an unsatisfying and illogical species of argument.

It is to be regretted, that the Thesis at the period of graduation, is not required at this School. While the daily and strict final examinations instituted, undeniably, give a very fair index of individual proficiency, on the part of the Student, it cannot be supposed or assumed, that all other American Medical Colleges (the Medical College of the State of South Carolina excepted, by its recent and injudicious policy in this connection) would continue unnecessarily and uselessly to require a written manifest of Professional efficiency which entails such arduous labour, upon both the Student and his teachers.

The advantages of this Institution have always been undeniable, and it is a pleasure to learn that they are undiminished. Its corps of teachers is very superior and is, deservedly, held in high estimation. The regular and faithful examinations instituted, are of incalculable advantage to the Student. The facilities for dissection are unimpaired, and though the Institution is at a long distance from great Cities, the material of this kind is said to be abundantly supplied. The Student, from the length of the term, is so judiciously taught, that the elementary basis in education is well established, before the superstructure is attempted. The Professors are not allowed to engage in any service unconnected with the interests of the Institution, and are compelled to reside within the precincts of the University, and are always accessible to the Student. The locality is healthy, and the surroundings, physical and intellectual, are undeniably attractive.

The reputation of this Institution is fully established and its Medical Department, with the improvements indicated, may justly anticipate a prominent and prosperous future.

ON SPERMATORRHŒA.—ITS CAUSES, SYMPTOMATOLOGY, PATHOLOGY, PROGNOSIS AND TREATMENT. By ROBERTS BARTHOLOW, A. M., M. D., Prof. Physic and Medical Chemistry in Medical College of Ohio. Lecturer on Clinical Medicine and Physician to St. John's Hospital, Cincinnati, etc. New York. WM. WOOD & Co., 61 Walker Street. 1866.

The author has discussed this subject, in a satisfactory and instructive manner. The reader will find nothing that may be regarded as special, in the treatment advocated, for this is adapted, with strict reference, to the etiology of each case. The pathological conditions are classified in three groups: genital, cerebral and spinal; the treatment is recommended accordingly. The sensational style, so frequently connected with this subject, is no where manifest, and one is impressed with the faithful and efficient manner, in which the disease is examined and discussed. Though there can be no doubt, that most of the cases heralded in practice and literature as those of spermatorrhœa, are due to widely different causes, and though this disease is exceedingly rare, it is occasionally presented for treatment. To those who have such cases, and desire to be rationally entertained or instructed in regard to them, this little Work is commended. The Publishers have fully done their duty, and the text is specially open and legible.

THE PHYSICIAN'S VISITING LIST, is still published by Lindsay & Blakiston, of Philadelphia, in the useful and acceptable style, so long familiar to Physicians. It is issued in several sizes, and the prices vary from seventy-five cents to two dollars a copy. The contents are briefly, as follows: An almanac; table of signs; Marshall Hall's ready method in asphyxia; poisons and their antidotes; tables for calculating the period of utero-gestation; blank leaves for visiting list of 25, 50 or 100 patients; monthly memoranda, addresses of patients and nurses, accounts requested, memoranda of wants, obstetric and vaccination engagements, record of births and deaths, general memoranda, etc. There is a pocket-book and a pencil attached. This little book is a useful and convenient companion for all, and is sent by mail at the cost of the Publishers.

THE ANNUAL DISCOURSE BEFORE THE MASSACHUSETTS MEDICAL SOCIETY. By GEORGE C. SHATTUCK, M. D., Professor of Theory and Practice of Medicine in the Harvard University, Boston, Mass.

This admirable dissertation on Professional Relations, is as creditable to the moral, as it is to the mental organization of its author. The subject is efficiently analyzed, and the moral lessons inculcated, would, if impartially read, tend to elevate and purify all Physicians, in their relations to the Profession, and to their patients.

THE MEDICAL REGISTER OF THE CITY OF NEW YORK. 1866. By GUIDO FURMAN.

This Work is replete with useful information, and is a great convenience, even to Physicians, who are not residents of the City of New York. Desirable facts in regard to Books, Instruments, Instrument Makers, Hospitals, Colleges, Teachers and Lecturers, Medical Societies, Publishers, a complete Medical Directory, etc., are carefully and accurately given. For sale by W. Wood & Co., 61 Walker Street. The author will accept the thanks of the Editors of this Journal for his courtesy.

MISCELLANEOUS.

Report of the Cholera Conference at Constantinople.—Through the kindness of Dr. William E. Townsend, of this City, we have been allowed the opportunity of examining the printed report of the Cholera Commission which held its sessions in Constantinople, during the early months of the present year. The document is, in our estimation, one of the most important on the subject of cholera which has ever been issued. It gives the results of the mature deliberations of the Conference, which was in session nearly two months. Recognizing the vast significance of the questions before them, and the importance of thorough and deliberate action, the whole Commission was sub-divided into six sub-committees, to which these questions were distributed for consideration. The report before us is the result of the joint labours of these sub-committees, brought together in a common report. It is a large pamphlet of eighty-three pages, and the various subjects discussed are distributed in thirty-three sections. Each of these sections is prefaced by a question, which is followed by a condensed résumé of all the most important facts in the history of cholera bearing upon the point, with the arguments on both sides of the question. The whole is summed up in each instance with the conclusion of the Commission, printed emphatically in Italics. The vote on each question is also given. We have the impression that this pamphlet was printed for private circulation only, as we have seen no mention of it in the Journals, although the recommendation of the Conference with regard to quarantine has been published. The copy before us came through the hands of an influential friend in Paris, direct from the Secretary of the Conference, Dr. Fauvel. Under these circumstances we feel that we cannot offer our readers anything so valuable as an abstract of this report. We have translated the questions at the head of each section, with the answer of the Commission in each instance, and the vote upon it. The whole pamphlet is eminently interesting and valuable, and worth translating. The names of the members of the Commission are as follows: the Count de Lallemand, the Count de Noidans and Segovia, *diplomats*, and Drs. Bartoletti, Bykow, Bosi, Dickson, Fauvel, Goodeve, Gomez, Baron Hübsch, Lenz, Maccas, Millingen, Monlau, Mühlig, Pélikan, Polak, Salem, Salvatori, Sawas, Sotto, I.Spadaro, and Van-Geuns.

FIRST GROUP OF QUESTIONS—THE ORIGIN AND GENESIS OF CHOLERA; THE ENDEMIC AND EPIDEMIC PREVALENCE OF THIS DISEASE IN INDIA.

I.—Whence did the cholera, called Asiatic, originally come? and in what countries does it exist in our day in an endemic form?

The Commission with one voice is able to answer, without hesitation, that the Asiatic cholera, which at different times has overrun the whole world, has its origin in India, where it had its birth, and where it exists permanently as an endemic.

Adopted unanimously.

II.—Out of India, does the Asiatic cholera exist in our day, in any part of the world, in an endemic form?

The Commission considers as demonstrated that the Asiatic cholera, wherever it appears, is never spontaneously developed and has never been observed as an endemic (care must be taken to distinguish secondary foci, more or less tenacious in their character) in any of the countries which have been enumerated (Europe, &c.), and that it has always come from abroad. As for the countries in the neighborhood of India, while admitting it as probable that the cholera does not exist there as an endemic, the Commission does not feel itself authorized to come to any formal conclusion on the subject.

Adopted by all the members of the Commission, except MM. Polak, Sawas and Van Geuns.

III.— Is there any reason to fear that the cholera may acclimate itself in our countries?

The Commission, without rejecting the possibility of the fact, regards it as problematic.

Adopted unanimously.

IV.—Is there in the Hedjaz an original focus of cholera, permanent or periodic?

The Commission is of opinion that Asiatic cholera does not appear to have had in the Hedjaz its original focus, but it appears to have always been introduced there from abroad up to the present time.

Adopted unanimously, except by Mr. Goodeve.

V.—Are there in India certain localities which have the exclusive privilege of generating cholera, or which are more particularly favorable to its development? In other words, is cholera endemic in all parts of India, or only in certain regions which it is possible to circumscribe?

At this time the Commission can only answer that there are in India certain localities, comprised principally in the valley of the Ganges where cholera is endemic, without being able to point out all of them, or to affirm that they have the exclusive privilege of giving birth to this disease.

Adopted uuanimously.

VI.—Do we know the causes by the concurrence of which cholera originates spontaneously in India, as well as the circumstances which make it take on an epidemic character?

The Commission feels obliged to limit itself to answering that we know not the special conditions, under the influence of which the cholera breaks out in India and reigns there in certain localities, as an endemic.

Adopted unanimously.

VII.—What are the circumstances which concur in the development and the propagation of epidemics of cholera in India?

The Commission believes itself authorized in answering, that pilgrimages are, in India, the most powerful of all the causes which tend to develop and propagate cholera epidemics.

Adopted unanimously.

SECOND GROUP OF QUESTIONS—THE TRANSMISSIBILITY AND PROPAGATION OF CHOLERA.

VIII.—Is the transmissibility of cholera proved to-day by facts which do not admit of any other interpretation?

The Commission, with unanimity, concludes that the transmissibility of Asiatic cholera is an incontestable verity, proved by facts which do not admit of any other interpretation.

Adopted unanimously.

Do not all these facts demonstrate conclusively that cholera is propagated by man, and with a rapidity in proportion to the activity and rapidity of his own movements?

The Commission does not hesitate to answer in the affirmative.

Adopted unanimously.

IX.—Are there conclusive facts which force us to admit that cholera can propagate itself at a distance by certain atmospheric conditions, by winds, or by any other change or modification of the surrounding medium?

The Commission answers that no fact has proved up to the present time, that cholera can propagate itself at a distance by the atmosphere alone, whatever may be its condition; and that besides it is a law, without exception, that never has an epidemic of cholera extended from one point to another, in a shorter time than was necessary for man to carry it.

Adopted unanimously.

X.—How is the importation of cholera effected, and what are the agents of its transmission?

It may be said, without more specific statement for the moment, that if all modes of conveyance from countries affected with cholera, are not likely to propagate the disease, it is none the less prudent at present, to consider all such means of conveyance as suspected. A more detailed examination will settle the question.

Adopted unanimously.

XI.—Under what conditions does man import the cholera?

Man, affected with cholera, is himself the principal propagating agent of this disease, and a single cholera patient may cause the development of an epidemic.

Adopted unanimously; and—

XII.—The Commission has been led to conclude that certain facts tend to prove that a single individual (with much greater reason many individuals) coming from a contaminated place, and suffering from diarrhœa, is able to cause the development of a cholera epidemic; or, in other words, that the diarrhœa called premonitory, is able to transmit cholera.

Adopted unanimously.

XIII.—What is the period of incubation?

In almost all cases, the period of incubation (that is to say, the interval between the moment when the individual may have contracted the cholera poison and the commencement of the premonitory diarrhœa, or of confirmed cholera,) does not go beyond a few days; all the facts cited of a longer incubation, belong to the class where the contamination may have taken place after departure from the infected place.

Adopted unanimously.

XIV.—Can the cholera be imported and transmitted by living animals?

There is no known fact which proves that cholera has been imported by living animals; but it is reasonable, nevertheless, to consider them, in certain cases, as belonging to the class of objects called susceptible.

Adopted unanimously, except by MM. Bykow and Lenz.

XV.—Can cholera be imported and transmitted by linen, clothing, and, in general, by articles in common use?

Cholera can be transmitted by articles in common use, coming from an infected place, and especially by those which have been used by cholera patients; and it also results from certain facts, that the disease may be transported to a distance by these same articles when closely shut up from the outer air.

Adopted unanimously.

XVI.—Can cholera be imported and transmitted by merchandise?

The Commission, while admitting with unanimity the absence of proof of the agency of merchandise in the transmission of cholera, admits (by a majority of 16 votes to 6) the possibility of the fact under certain conditions.

The negative votes were those of MM. Bykow, Goodeve, Lenz, Pélikan, Polak and Van Geuns.

In consequence, until more fully informed, the Commission believes that it will be wise to consider, as suspected, at least under particular and determined conditions, everything coming (*toute provenance*) from a cholera district.

Adopted unanimously, except by MM. Goodeve, Pélikan and Polak, who declined voting.

XVII.—Can the bodies of patients who have died of cholera import and transmit the cholera?

Although it is not proved, by conclusive facts, that the bodies of patients dying with cholera can transmit the disease, it is prudent to consider them as dangerous.

Adopted unanimously, except by M. Sawas, who declined voting.

ON THE INFLUENCE OF MEANS OF COMMUNICATION.

XVIII.—What influence do the various modes of communication, whether by land or sea have upon the propagation of cholera?

The Commission answers, that maritime communications are by their nature the most dangerous; that it is they which propagate most surely cholera at a distance, and that next to them comes communication by railroad, which in a very short time may carry the disease to a great distance.

Adopted unanimously.

XIX.—What is the influence of deserts upon the propagation of cholera?

The Commission, resting upon facts established by experience, concludes that great deserts are a most effectual barrier to the propagation of cholera and it believes that it is without example for this disease to be imported into Egypt or Syria across the desert, by caravans from Mecca.

Adopted by all the members of the Commission except MM. Monlau, Pélikan, Polak and Van Geuns, who declined voting.

THE INFLUENCE OF CROWDING.

XX.—What is the influence of crowds upon the intensity of epidemics of cholera, as well as upon the propagation of the disease, and under what conditions does it exercise its influence?

All crowding together of human beings, among whom cholera has been introduced, is a favorable condition for the rapid spread of the disease; and, if this crowding exists under bad hygienic conditions, for the violence of the epidemic among them.

That in this case the rapidity of the extension of the disease is in proportion to the degree of crowding, while the violence of the epidemic is, other things being equal, so much the greater according as individuals have been little exposed to the choleraic influence or not at all: that is to say, in other words, individuals who have already been exposed to the influence of a cholera atmosphere enjoy a sort of relative and temporary immunity which counterbalances the bad effects of crowding.

Finally, in the case of a dense crowd, the more rapid its separation so much the more rapid is the cessation of the epidemic, at least if new arrivals of unaffected persons do not furnish new aliment for the disease.

Adopted unanimously.

XXI.—What is the intensity and what the tenacity of cholera epidemics on shipboard?

The Commisson replies that the intensity of cholera on board ships crowded with men is, in general, proportionate to the crowding, and is so much the more violent, other things being equal, if the passengers have not resided in the focus of cholera from which they started; that on crowded ships the spread of cholera epidemics is ordinarily rapid; finally, the Commission adds that the danger of importation by ships, and that of giving rise to a grave epidemic are not entirely subordinate to the intensity, nor even to the existence of choleraic symptoms appearing during the voyage.

Adopted unanimously, except by M. Monlau, who declined voting.

XXII.—What influence does the accumulation in lazarettos of individuals coming from a cholera district, exercise upon the development of cholera among the people at quarantine, and in the neighborhood?

The Commission concludes that the crowding together of people coming from a place where cholera reigns in a lazaretto, has not the effect of producing, among the people at quarantine, a great extension of the disease; but that such a gathering is nevertheless very dangerous for the neighbourhood, as it is calculated to favor the propagation of cholera.

Adopted unanimously, except by M. Monlau.

XXIII.—What influence do great collections of men, in armies, fairs, pilgrimages, exercise upon the development and propagation of epidemics of cholera?

The Commission concludes that great gatherings of men (armies, fairs, pilgrimages) are one of the most certain means for the propagation of cholera; that they constitute the great epidemic foci which, whether they march, after the manner of an army, or whether they are scattered, as at fairs and in pilgrimages, import the disease into the country which they traverse; that these gatherings after having been exposed, usually in a rapid manner, to the influence of cholera, become much less susceptible to its power, and that it disappears very speedily, unless newly arrived persons take the disease.

Adopted unanimously.

XXIV.—What is the influence of dissemmination upon the intensity and development of cholera epidemics?

The Commission concludes that the breaking up of a collection of people, at an opportune time, may render less violent an epidemic of cholera, and even arrest its extension; but that this scattering, on the other hand, gives rise to great danger of propagating it, if it take place in the midst of a region as yet unaffected.

Adopted unanimously.

XXV.—What part belongs to the pilgrimage to Mecca in the cholera epidemics of our day?

The part of the pilgrimage to Mecca, as an agent in propagating cholera, as regards the neighbouring countries of Europe (the only one with regard to which we have positive information) has been the introduction of this disease into Egypt twice, with an intérval of thirty-four years, during the hot season.

Adopted unanimously, except by M. Polak, who declined voting.

THE INFLUENCE OF HYGIENIC CONDITIONS.

XXVI.—What is the influence upon the violence of cholera epidemics exerted by hygienic and other conditions of locality; in other words, what are the assisting causes of cholera?

The Commission recognizes that the hygienic and other conditions which in general predispose a population to contract cholera, and consequently favor the intensity of epidemics, are: misery, with all its consequences; overcrowding, particularly of persons in feeble health; the hot season; want of fresh air; the exhalations from a porous soil impregnated with organic matters, above all with the dejections from cholera patients.

In addition, the Commission think that, as it appears demonstrated by experionce that the discharges of cholera patients contain the generative principle of cholera, it is right to admit that drains, privies, and the contaminated waters of towns may become the agents for the propagation of this disease.

The Commission adds, that it seems to result from certain facts, that the soil of a locality, once impregnated with cholera detritus, is able to retain, for a considerable length of time, the property of disengaging the principle of the disease, and of thus keeping up an epidemic, or even of regenerating it after it has become extinct.

Adopted unanimously, except by M. Pélikan.

Immunity from Cholera.

XXVII.—How is immunity from cholera to be interpreted?

The immunity which certain localities enjoy, that is to say, the resistance, permanent or temporary, general or partial, opposed by these localities to the development of cholera within their limits, is a fact which does not exclude transmissibility, but which indicates that certain local conditions, not yet entirely determined, are an obstacle to the development of the disease.

The same immunity, more or less complete, and more or less durable, which the majority of persons in the midst of an infected district enjoy, an immunity which attests the individual resistance to the toxic principle, is a circumstance to which we should attach the highest importance.

In point of view of epidemic development, it is the corrective of transmissibility, and viewed with regard to prophylaxia, it sets in operation proper means to arrest the ravages of the disease.

Adopted unanimously, except by MM. Monlau and Pélikan, who declined voting.

Deductions relative to the Generative Principle of Cholera.

XXVIII.—From the facts above established, and which relate to the genesis, the propagation and the transmissibility of cholera, can we draw any precise conclusion with regard to the generative principle of the disease, or at least with regard to the media which serve as its vehicles, or receptacles; with regard to the conditions of its penetration into the organism, the ways by which it passes out, the duration of its morbific activity, in a word, with regard to all its attributes, a knowledge of which is important to guard against it?

In the actual state of science, we can only frame hypotheses as to the generative principle of cholera; we know only that it originates in certain countries of India, and that it dwells there permanently; that this principle is reproduced in man, and accompanies him in his journeyings; that it may also be propagated at a distance, from place to place, by successive regenerations, without ever being reproduced spontaneously outside of man.

Adopted unanimously, except by M. Goodeve, who declined voting.

XXIX.—What are the vehicles of the generative principle of cholera?

Under the name of vehicles, the Commission intends to speak merely of the agents, by means of which the morbific principle penetrates the organism. To this question the facts reply that the air is the principal vehicle of the cholera principle. . . . The action of the cholera miasm is so much the more sure as it operates in a confined atmosphere, and near the focus of emission. . . It seems that it is with cholera miasm as it is with the miasm of typhus, which rapidly loses its power in the open air, at a short distance from its starting point.

XXX.—To what distance from a focus of disease can the principle of cholera be transported by the atmosphere?

The surrounding atmosphere is the principal vehicle of the generative agent of cholera; but the transmission of the disease by the atmosphere, in an immense majority of cases, is limited to a space very near to the focus of emission. As for the facts cited of transportation by the atmosphere, to the distance of one or more miles, they are not sufficiently conclusive.

Adopted unanimously, except by M. Goodeve, who declined voting.

XXXI.—Independent of the air, what other vehicles are there of the cholera principle?

Water and certain ingesta may also serve as vehicles for the introduction into the organism of the generative principle of cholera.

This granted, it follows, so to speak, necessarily, that the passages by which the toxic agent penetrates into the economy are principally the respiratory passages and very probably also the digestive canals. As for its penetration by the skin, nothing tends to prove it.

Adopted unanimously.

XXXII.—What are the principal receptacles of the cholera principle?

The matter of the cholera dejections being incontestably the principal receptacle of the morbific agent, it follows that everything which is contaminated by the discharges becomes also a receptacle from which the generative principle of cholera may be disengaged, under the influence of favorable conditions; it follows, also, that the origin of the cholera germ takes place very probably in the digestive canal to the exclusion, perhaps, of all other parts of the system.

Adopted unanimously.

XXXIII.—What is the duration of the morbific activity of the generative principle of cholera?

It results from the study of facts, that in the open air the generative principle of cholera loses rapidly its morbific activity, and that this is the rule; but that under certain particular conditions of confinement, this activity may be preserved for an unlimited period.

Adopted unanimously.

Finally, the Commission adopts the following formula:—

Observation shows that the duration of the choleraic diarrhœa, called premonitory—which must not be confounded with all the diarrhœas which exist during the time of cholera—does not extend beyond a few days.

Facts cited as exceptional do not prove that the cases of diarrhœa prolonged beyond that period belong to cholera, and are susceptible of transmitting the disease, when the individual affected has been withdrawn from all cause of contamination.

Adopted by fourteen votes against four, viz., MM. Gomez, Millingen, Mühlig and Salvatori; M. Monlau declined voting.

Here end the labours of the Commission, with regard to the origin, the endemic condition, the transmissibility and the propagation of cholera, and the historic sketch of the march of the epidemic of 1865, made by a sub-committee, of which Dr. Bartoletti was the Secretary, before being presented separately to the conference.

With regard to the different questions placed upon the programme, it is to be said, that by limiting themselves to drawing from facts the consequences which reasonably flow from them, the Commission thinks it has established sure foundations which will enable the conference to pronounce understandingly upon all questions relating to prophylaxia. Signed by A. Fauvel, Sec'y.

The present report, having been discussed and adopted, chapter, by chapter, was approved as a whole by all the members of the Commission.

Constantinople, May, 21*st* 1866.

Signed by all the members of the Commission.

The above abstract gives, in a condensed form, the substance of a report which confirms in the strongest manner all that this and other journals in this country and abroad have maintained with regard to the communicability of cholera. It is not strange, therefore, that, as is stated by the French press, the Conference adopted the following propositions, presented by the French delegates, as we learn from the *Medico-Chirurgical Review:*—

"To break off all communication—the moment cholera appeared among the pilgrims—beween the Arab ports and Egyptian coast, leaving the land route followed by the caravan open for the hadjis for their return to Egypt. In other words, the pilgrims would be obliged to perform quarentine, either in the Hedjaz till the epidemic ceased, or in the desert in the caravan route."—*Boston Med. and Surg. Journal.*

EARLY VIABILITY OF THE FŒTUS—AN EXTRAORDINARY CASE. Reported by WILLIAM KENNEDY, M. D., New Orleans.—In 1845 Mrs. A. B., primipara, suffered, as she thought, during one whole night with colic. I saw her next morning, when I recognized that she was in labour, which had progressed so far that I made no attempt to arrest it. Within a half hour after my arrival she gave birth to a fœtus. It was not more than eight inches long, and was as red as a piece of raw beef. True dermoid tissue could not be said to be organized, its general investiture being so delicate a membrane, as it were, that the eye could look through it on the tissues beneath. The eyes were still closed; there were no traces of cilia or supercilia; its chest was about two inches broad; the arms and legs were very slender, and the toes and fingers devoid of any traces of nails. The head was about the size of a small orange. The respiration was so feeble as scarcely to be perceptible, and not a sound was uttered after birth. I was almost afraid to handle it, as I could not divest myself of the idea, that the slightest pressure of the fingers would thrust them into the soft, red, jelly-like mass before me. When I raised it from the couch and laid it in the length of my left hand, the head lay on the convexity of my flexed fingers, the chest and breech in the palm, and the feet reached almost an inch beyond the wrist.

I wrapped it carefully in batting, and carefully attended to maintaining a proper surrounding temperature. It was fed, drop by drop, with sugar and water, every four or five minutes, and later, when the mother could supply it with milk, half a teaspoonful was given every half hour or hour. Within three weeks after birth it had a mild attack of trismus. During treatment I gave it frequent baths in a tumbler. The period of infancy was one of the most stormy I ever saw. Hydrocephalus, cholera infantum, measles, diarrhœa, are some of the many affections it suffered from during that time, and up to three or four years of age. When last I saw him he was a fine, healthy boy of twelve years, and gave promise of a vigorous manhood.

I should have been pleased to have furnished a more accurate account of this case. The importance of the subject demands it. But my note book, carefully preserved during many years of arduous practice, and which I hoped, in my declining days, to make useful to my brethren, through the medium of the press, has like my library and every vestige of household material, passed from my possession under the ruthless hand of destructive war.

The report of this case, is a matter of the highest importance, both in a hunanitarian and medico-legal point of view; and that which gives additional value to the report is its entire reliability. No man stands higher in his Profession in this community than Dr. Kennedy, and his observations may be relied on as strictly accurate. It is certainly a matter for real regret that Dr. K. should have lost his complete notes of the case, as it would have been most truly interesting to have watched the progress of development, from week to week, of so young a fœtus thrown into the external world. We consider this case as the most important one on record, when we consider the reliability of the author of the report, the exceeding youth of the fœtus, the very limited development, the stormy history of its infantile life, and the successful issue. In a humanitarian point of view, it must interest the scientific obstetrician, as it must force on him a sense of the imperative duty of refraining from unnecessary destruction of fœtal life, even at so early a period; as well as the duty of carefully attending to every fœtus born with evidences of vitality under his hands. We have an abiding conviction that not a few fœtal lives are sacrified in every community through neglect of the indications thus made manifest.

Again, in a medico-legal point of view, if the fact of viability, and consequent claim to inheritance of titles or estates, shall have always heretofore been denied the fœtus of less than six months, this case would seem to set aside all prejudice on the subject. The law, in such cases, can justly take cognizance only of authentic facts, and can not arbitrarily fix a certain age of viability. In Wharton and Stillé's Medical Jurisprudence, we find accounts of a fœtus born on the one hundred and seventy-ninth day of gestation, living to the age of four months, and then dying of epidemic disease; of another, born on the one hundred and fifty-eighth day of gestation, weighing one pound, measuring eleven inches in length, and being still alive three years after; and another born at twenty-seven weeks, and living still eleven years after; and another thought to be not more than five months, as, three weeks after birth it weighed only one pound, thirteen ounces, measuring between eleven and thirteen inches, and surviving its birth one year and nine months.

Dr. Kennedy's case takes precedence of all these, as the description of its length and general development go to indicate clearly that it could not have been more than one hundred and forty to one hundred and forty-five days old at birth.

The Napoleonic Code would seem to fix legal viability at one hundred and forty-eight days, but with the light of Dr. Kennedy's case before us, should the reputation of a woman, or the hereditary rights of her child, be compromised under the force of such arbitrary dicta? Or will a husband be justified in suspecting the integrity of his wife, or in seeking divorce from her, on such grounds. D. W. B.—*Southern Journal Medical Sciences.*

PRURIGO ANI.—In our Excerpts it will be seen "yellow wash" is proposed for this "form of herpes." We have cured it for twenty-five years with Citrine Ointment.—*Nashville Journal of Med. and Surg.*

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE—SESSION OF 1866–67.—On account of irregularities in the mail, the following important changes, in the advertisement of this College, were received too late for insertion. The Faculty of the College, with the corps of Adjuncts, is now composed as follows:

Nathan R. Smith, M. D., Professor of Surgery; W. E. A. Aikin, M. D., LL. D., Professor of Chemistry and Pharmacy; George W. Miltenberger, M. D., Professor of Obstetrics and of Diseases of Women and Children; Richard McSherry, M. D., Professor of Principles and Practice of Medicine; Christopher Johnston, M. D., Professor of General, Descriptive and Surgical Anatomy; Samuel C. Chew, M. D., Professor of Materia Medica and Therapeutics; Frank Donaldson, M. D., Professor of Physiology, Hygiene and General Pathology; James H. Butler, M. D., Demonstrator of Anatomy and Adjunct to the Professor of Anatomy. The gentlemen above mentioned are the Physicians and Surgeons to the Infirmary, who give clinical instruction throughout the year at that Institution. Alan P. Smith, M. D., Adjunct to the Professor of Surgery; Ferd. E. Chatard, Jr., M. D., Adjunct to the Professor of Obstetrics; W. Chew Van Bibber, M. D., Adjunct to the Professor of Practice; J. H. Straith, M. D., Adjunct to the Professor of Materia Medica; M. J. DeRosset, M. D., Adjunct to the Professor of Chemistry; Geo. W. Miltenberger, M. D., Dean.

AMERICAN MEDICAL ASSOCIATION.—The Prize Essay Committee of the American Medical Association request that all communications, to be submitted to them, be sent to their chairman before the 15th day of March next, accompanied by a sealed envelope containing the name and address of the authors. The Association offers two prizes of one hundred dollars each, for the two best essays on any subject connected with the Medical Sciences. F. Donaldson, Chairman; W. Chew Van Bibber, Josiah Simpson, Edward Warren, C. C. Cox, Baltimore, Md.

SUDDEN BLANCHING OF THE HAIR.—A recent number of Virchow's *Archiv* contains a highly interesting arricle by Landois, of Greifswald, on sudden blanching of the hair. The possibility of such an occurrence has been doubted by many, if not all eminent dermatologists of the present day, although several well-known instances are recorded in history. The question is now settled beyond any doubt by observations made by the author upon a case in Prof. Mosler's clinic. The patient was 34 years old, and was received at the hospital on account of delirium tremens. At the morning visit, on the fifth day of his stay, it was noticed by the visiting physicians and tho patients that the hair upon his face and head had become grey. On looking at himself in a mirror, he exclaimed: "Ach Gott, mir sind die Haare grau geworden!" Strange to say, the delirium vanished at the same time. A microscopic examination showed the presence of a great many minute air-bubbles at the white points, both in the cortical and central portions of the hair. The pigment was perfectly preserved throughout the whole shaft of the hair, and had undergone no change whatever. As the hair gradually is changed to grey the pigment disappears, but in this instance the rapid whitening during a single night was produced by the development of gas within the substance of the hair.—*Boston Med. and Surg. Jour.*

A PLEASANT SUBSTITUTE FOR EPSOM SALTS, AS A PURGATIVE. M. Garot recommends the following formula for the preparation of tasteless purgative salts, (citrate magnesia); carbonate of magnesia 15 parts; citric acid 21 to 23; aromatic syrup 60; water 300. The citric acid is separately dissolved and added to the carbonate of magnesia diffused in water. As thus prepared it is not effervescing; but it is easily rendered so by adding only half the quantity of acid, and reserving the addition of the other half until the dose is taken. The above proportions in grains would constitute a dose.

MEDICAL HUMOUR.—At a late medical dinner in London, Sir Charles Locock, who has been nearest to the Queen in some of her most trying moments, was facetiously toasted as the "earliest friend" of the rising members of the Royal family. He was also congratulated on the honours he had attained, after numerous and arduous "labours," and as her Majesty was at a loss what additional title to confer, the company suggested "Lord Deliverus!"

ITCH.—The Prussian military authorities, it is stated, find that the most effectual way of curing itch, is to smear the part with a mixture of two parts of liquid storax, with one part of sweet oil; the cure is complete in twenty-four hours.

MEDICAL NEWS.

Dr. Samuel Logan, of Charleston, South Carolina, was, on the 14th of September, elected to the Chair of Anatomy, in the Medical College of Virginia. This Chair has recently been made vacant, by the resignation of Dr. A. E. Peticolas, who has accepted a corresponding Chair, in the New Orleans School of Medicine.

The success of a Medical College, materially, depends upon the judicious policy of so selecting didactic talent, as to secure, with it, that increased scholastic attendance which ensures pecuniary prosperity, and the widest dissemination of whatever ability may be evinced by the members of the Faculty. Such a policy attracts Students, from the States represented by the teachers, and enlarges the area upon which the School relies for support. The friends of this College are to be congratulated, upon the inauguration of such a policy, for while other candidates, equally worthy, could have been chosen, such a choice would have inevitably tended to perpetuate the familiar, though incorrect charge, that this Institution was becoming but a local School of Medicine.

It is in the discharge of a pleasurable duty, that the Medical College of Virginia, since the recent radical changes in its policy, is commended to the confidence and support of the Profession.

The General Council of Medical Education and Registration, of Great Britain, have just enacted, that no Medical Student shall be admitted to lectures, until he shall have been closely examined in the higher branches of an English education, with Mathematics and Latin; that no Student shall be examined, for his final degree, until he shall have attended four Winter sessions of lectures, or three Winter and two Summer sessions, including in each session, all of the branches of Medicine, with Physics, Botany and General History.—*Lancet.*

An authentic copy of the life of Sir Thomas Watson, M. D., F. R. S., with a recent photograph of himself, has been recently received from this well known and distinguished Physician. A steel engraving of the photograph, with his life, will soon be published in this Journal.

Absorptive Power of the Skin.—From numerous experiments, M. Scoutetten, the great authority upon mineral waters and their electricity draws, the following deductions as to the facility with which certain substances are absorbed by the skin: (1) The rapidity of absorption depends upon the tenuity of the molecules of the substance applied, and its facility of mixing with the fatty secretion of the skin. (2) Gases traverse the pores of the integument with great rapidity. (3) Liquids which pass easily into the gaseous state are quickly absorbed; such liquids are ether, chloroform, essential oils, benzoin, and turpentine (4) Solid bodies susceptible of volatilization also penetrate the skin rapidly: such are camphor, musk, castoreum, etc.; cantharides is absorbed because of its essential oil—cantharidine, which may be volatilized. (5) The solid bodies, non-volatile require to be mixed with fatty or oily substances, and to be applied with friction. They thus unite with the natural fatty matter of the sebaceous glands, and become absorbed.—*Lancet.*

DEATH BY ELECTRICITY.—The rats in the Parisian sewers are being killed by electricity. Wires insulated by glass feet, and connected with a strong galvanic battery, are hung with little pieces of roast meat at short intervals. The rats, by nibbing at the bait, bring down the galvanic shock with terrible power upon their bodies, and death is instantaneous. What are the post-mortem appearances?—*Lancet.*

PRESERVATION OF CHLOROFORM.—According to M. Boetger chloroform which has been altered by the action of the sun's rays, and contains hydrochloric acid and a chlorinous odour, may be restored and rendered fit for use for inhalation by agitation with a few fragments of caustic soda. It may be kept exposed to the light in the presence of some fragments of caustic soda.—*Jour. de Pharm.*

We see it stated that since the brief campaign, in which Prussia has been so triumphant, Austria has joined the Association for the relief of suffering on the battle-field. It will be remembered that before the war she was the only Christain nation of Europe, which held back from joining this truly humane orginization.

A grant of money has been made by the Treasury to the Department of Health, for the purpose of conducting a special series of experiments and researches in connexion with the present outbreak of cholera. Mr. Simon will conduct the inquiry.—*Lancet.*

ARTIFICIAL LIMBS.—The Medical Department of the army, up to May 11th, 1866, had furnished to disabled soldiers the following artificial limbs: arms, 2134, legs, 3784; hands 144; feet, 9; other apparatus, 104; at a total cost of $357,728.

The two medical schools of Louisville have been merged into one—the old University School; the Faculty of the Kentucky School of Medicine having accepted positions in it.

A preparation of paraffin, devoid of smell or taste has been made, it is said, which will preserve meat for an indefinite time.

EDITORIAL.

The aggregate results of individual observation, and the wisdom derived from the library, are, as enunciated in familiar phraseology at the bedside of the patient, accepted and chronicled as clinical lectures.

This style of teaching was generally adopted, as early as the days of the Asclepiades, and formed the basis and value of the reputation of Hippocrates. Without entering into an impracticable and tedious history of this subject, it may be said, that subsequent to the era of Hippocrates, medicine, as a science, was taught rather on a forensic than a clinical basis, and that, even as late as the writings of Cullen, the Student was entertained, with the finespun deductions of a speculative philosophy, rather than with the vital lessons to be derived from the faithful study of clinical facts. In a period, as comparatively recent as that of the eleventh century, the great teachers of France and Italy consumed the time of their pupils, over vain philosophical disputes and endless commentaries, while the early days of printing gave but increased impetus to this profitless expenditure of time and labour. It was not until the middle of the seventeenth century, that this foolish intoxication, from the subtle teachings of Aristotle became dissipated, and that the cobweb polemics of disputative theorists were exchanged for the proofs of the bedside, and the logic of the dissecting table.

In the last century, clinical lectures regained their original importance, and the history of Medicine, in repeating itself, has, in this connection, again completed another of its great centennial circles. Centuries have become history, and the Students at the bedside, stand where once stood the pupils of Hippocrates, witnessing the eloquent records, transcribed by the hand of Nature, and learning their proper interpretations, from the tongue of the Master. For such interpretations there can be, to those sufficiently educated to understand them, no equivalent or substitute, and the fact made known by Marcellinus, that faithful attendance alone at the Hospitals of Alexandria, entitled the attendant to his diploma, is as significant now of the great importance of clinical instruction, as when the Student, in the dark ages of medicine, sought for light, at the bedsides of the sick.

Professional erudition may be eloquent and profound at the desk and in the library, but no magical effects in the art of word-painting can convey a true conception of those pictures which disease and death, so truthfully present at the hospital. If history teaches any great lesson, it is that the sublimest efforts of the tongue, the pen, the chisel or the brush, wrong, at best, the simplest manifestations of Nature; that in the study of disease, truth of conception is the offspring of sight. No one appreciates the sublime mystery of Niagara, from the lips of the lecturer, and the pen of the tourist is impotent, in depicting the grand solitudes of Nature. Powers' masterpiece conveys only a pictorial impression of Grecian slavery, and in the best landscapes of Claude, one looks, in vain, for the active and tangible attributes of his country's scenery. What is true of collateral science and art, is specially true of medicine, that accurate appreciation is the result of sight. Læennec was unable to depict the physiognomy of phthisis, when a single glance, by the novice, stamps the fully developed disease forever upon the memory. The physical, mental and moral results of epilepsy are beyond the descriptive power of master-tongues and pens, while the bedside phenomena of a single case, give to the disease, an individuality, that the observer, subsequently, infallibly recognises. Who is sufficiently accurate or able to describe the outlook and behaviour of peritonitis, yet, who that has clinically observed the disease requires any longer for its recognition, the detailed minutiæ of the lecturer or the faithful compilations of the author. Thus is it with cholera, paralysis, etc. Such illustrations, it were a pleasure to furnish by pages, but the inculcations derived from them are, in all respects, similar, that the desk and the library are valuable adjuncts in the study of disease, but to accurately learn the truth, all must, at the bedside, attend the infallible teachings of Nature.

The importance of clinical instruction cannot be described or illustrated, it can only be correctly appreciated, by the testimony and record of those who have practically experienced such advantages.

To read the records of disease at the bedside, however, or to profitably hear them read, requires antecedent education and instruction. Each disease has its special language, and, as to the Student in literature, the important facts of history are apocryphal, unless there be familiarity with the language, in which they are recorded, so no one can read the records of disease, unless previously instructed, in regard to those symbols, in which these records are presented; equally impossible is it to comprehend these strange records, when read by another. As patent and self-evident as is this truth, it has no practical recognition, in the course, adopted in the Medical Colleges of America. Matriculants are not only invited, but seduced to the bedsides of the various hospitals to listen to expositions in a language, of which they are necessarily and profoundly ignorant; expositions which they would fail to comprehend, even if given, (as good taste and propriety would suggest,) in the informal language, proper on such occasions, but which, when couched in a phraseology often obscure, even to the initiated, is to them as perplexing as it is unintelligible. As appropriate would it be to describe the Cnidian Venus to the quarrymen of Carrara, or to read to the painter's apprentice the art-theories of Paul Veronese.

All close observers have noticed, with surprise and condemnation, that many of the clinical lecturers of this Country have ceased to make, in familiar language, a few apt and appropriate comments, at most of the bedsides demanding their care and attention, but that passing on to one special patient, there is delivered, in the presence of professional or non-professional listeners, some elaborate or formal lecture, which, if justly regarded as turgid and pedantic in the lecture room, becomes, when delivered at the bedside of some poor unfortunate, absurd and inexcusable. Thus judged by those who are able to understand it, such a lecture is, to the matriculant, unintelligible also and often ridiculous. No one is so foolish as to regard such an effort, as an extemporaneous triumph, and this reason for the display being condemned and palpable, it is to be hoped, that such harangues may be numbered with the follies of the Past.—Such lectures, even when properly prepared, belong to the lecture-room only, but when delivered at the bedside, they disturb the sick; injure the lecturer in the esteem of all men; are censured by the well prepared Student, and if applauded by the wondering matriculant, are when study and experience ripen the judgment, ridiculed and condemned.

To add, as it were, to the absurdity often manifested, in inviting matriculants to be present at clinical lectures, and in adopting the elaborate style of the lecture room, at the bedside, it is a familiar fact, that but a portion of a class can hear one of these bedside lectures; a large number being unable to see or touch the patient, or to enter the room in which the lecture is delivered. A Student is compelled to evince no ordinary degree of dexterity, ingenuity and celerity of movement, to hear more than one-half of what is said, during this system of movable clinics; his time being spent, when excluded from one bedside, in endeavouring to learn the bed, to which the lecturer will next deliver his explanations, and of securing a position, among the many, who have preceded him. These absurd and amusing scenes are but too familiar, and it is notorious that they are most frequent with those Institutions having the largest classes, and most prominent in calling attention to the extraordinary clinical advantages offered by them. There are some disadvantages inseparable from a system of polyclinics, but those mentioned can, by a constant display of sound judgment and good management, be easily avoided. It is as much with a view of calling a reformatory attention to the abuses that have been mentioned, as of alluding to the great advantages of the venerable system of clinical lectures, that these few remarks have been presented.

It must be evident, to the most superficial observer, that no Student should be allowed the privileges of the diploma, until he has attended, or given a promise to attend, some School of Medicine, at which the great advantages and facilities of clinical study are presented. It is no less evident, that so far from being a disadvantage to a Student to matriculate, at a Medical College destitute of clinical material, such a course would be most advantageous and beneficial to him. Time uselessly and unprofitably spent, in listening to clinical lectures unintelligible to him, may thus be given to enjoying a thorough and judicious system of didactic instruction.

Those Physicians having the care and direction of private pupils could, in no respect, discharge a higher or more useful duty, than in indicating to those, looking to them for advice, the disadvantages of clinical lectures to "first course" Students, and the immeasurable importance of such lectures, to those who have profitably passed through the period of their novitiate.

It is a gratification to inform the readers of this Work, that a bi-monthly Italian correspondent has been permanently engaged. The first letter is from Pisa, the centre of medical literature and medical science in Italy; future letters will afford ample information of all that is Professionally interesting at Rome, Florence, Naples and other localities of interest, and importance. Arrangements are now being made to obtain valuable correspondents at Berlin, Dublin and Vienna. When these engagements are definitely arranged, the readers of this Journal will be regularly and reliably informed, in regard to all matters of Scientific and Professional import, at all of the centres of Medical interest, in Europe and America.

Manuscript of value and importance is being rapidly accumulated, and the Editors are sparing neither labour nor expense in making this work, in all respects, worthy of the support and confidence of the Profession.

A letter has been received from a friend, calling attention to the uneven condition of the edges of this Journal. As others may have similarly directed their observation, without feeling at liberty to send a communication upon the subject, the supporters of the Journal are informed, that the edges of each number are purposely left uncut, that, at the end of the year, all of the numbers may be permanently bound in two volumes.

Journals are frequently rubbed or injured about their edges, (in the mail-bags,) and if these were uniformly cut, at the period of original publication, it would be impracticable to recut them, when the work is bound, and all such injuries to the edges of each number would permanently deface the Work. It is, therefore, to the interest of the subscriber, that the margins should not be uniformly cut, when each number is mailed.

NOTICES.

☞ This Journal is published as a Monthly octavo of ninety-six pages.

The Editors offer to pay, at the HIGHEST JOURNAL RATES, for **ARTICLES, ESSAYS, CORRESPONDENCE and REVIEWS OF RECENT WORKS.**

The terms of this Journal have been changed; see notice on the cover.

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Those once ordering the Journal will each year be considered as subscribers, and the terms of this Journal adopted in regard to them. An order for discontinuing the Journal should be sent at least two months in advance. As is usual, no subscription or advertisement will be discontinued until arrears are paid.

The Publishers assume the risks in regard to all amounts sent by mail, if the packages or letters are registered. When practicable, all sums to be so sent should be deposited with the Postmaster, and the "money order," obtained from him, transmitted.

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All contributions or papers, intended for insertion in the next Number of the Journal, should be received by the middle of the month preceding.

Contributions for publication must bear the signature of the writer, and must be communicated to this Journal exclusively.

Original articles should be written on one side only of each sheet, and the manuscript should be, by the sign (¶), divided into paragraphs.

Contributors can have forwarded to them, at a small expense, one hundred or more copies of their articles, in pamphlet form, provided the order to this effect be received before the period of publication.

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Rejected manuscript will be returned, if desired, by mail or Express, at the expense of the writer.

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MATRIMONIAL.

Married, on June 5th, 1866, by the Rev. Dr. Seiss, at St. John's Lutheran Church, Philadelphia, Dr. ROBERT BOLLING, of Philadelphia, to LEONTINE, youngest daughter of the late Edward Hagedorn, Esq., of Bremen, Germany.

BOOKS AND JOURNALS RECEIVED.

Bartholow on Spermatorrhœa. By R. Bartholow, M. D., etc. From Publishers.

Manual of Materia Medica and Therapeutics. An Abridgment of Pareira's Elements of Materia Medica. By Horatio C. Wood. Philadelphia. Henry C. Lea. 1866. From Publisher.

A Practical Treatise on Fractures and Dislocations. By Frank Hastings Hamilton, A. B., A. M., M. D., etc. Third Edition. Philadelphia. Henry C. Lea. 1866. From Publisher.

Medical Register of the City of New York for 1866. By Guido Furman, M. D. Edward O. Jenkins. 1866. From the author.

Whiskey and Tobacco. By Paul F. Eve, M. D.

Transactions Vermont Medical Society. 1866.

The Dental Review. A Quarterly Journal of Dental Science. London. From the Editor. Robert T. Hulme, M. R. C S.

The Journal of Materia Medica. New Lebanon, N. Y.

Thirty-Second Annual Announcement of the Medical College of Georgia.

Inguinal Aneurism. By C. H. Mastin, M. D. Mobile, Ala.

Annual Circular of Medical Department University Louisville, Ky.

Hunterian Ligation of Arteries. By Prof. H. F. Campbell. New Orleans. From the author.

Prospectus of the Kansas City Medical and Surgical Pioneer. J. Keeley, M. D., Senior Editor.

The following Exchanges are regularly received: The Atlanta Medical and Surgical Journal; Boston Medical and Surgical Journal; Braithwaite's Retrospect; Buffalo Medical and Surgical Journal; Chicago Medical Journal; Chicago Medical Examiner; Cincinnati Lancet and Observer; Druggist's Circular and Chemical Gazette; Galveston Medical Journal; Journal of Applied Chemistry; London Lancet—Original and Reprint; New York Medical Record; Nashville Journal of Medicine and Surgery; New Orleans Medical Journal; New Orleans Medical Record; New York Medical Journal; Pacific Medical and Surgical Journal; St. Louis Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; Southern Journal of the Medical Sciences; Southern Medical and Surgical Journal; The American Journal of Pharmacy; The American Journal of the Medical Sciences; Dental Cosmos; The Detroit Review; Philadelphia Reporter; Medical and Surgical Monthly; The St. Louis Medical Reporter; Le Mouvement Medical, Paris; Journal de Medecine Mentale, Paris; Medical Press and Circular, Dublin; Revue de Therapeutique Medico Chirurgicale, Paris; Revue Medicale, Paris; Littell's Living Age; The Farmer; Cincinnati Journal of Medicine; Canada Medical Journal; London Punch; Memphis Medical and Surgical Monthly; Journal of Materia Medica.

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The Richmond Medical Journal.

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ORIGINAL COMMUNICATIONS.

"Qui Docet, Discit."

Art. I.—Ovariotomy. By Julian J. Chisolm, M. D., Prof. of Surgery in the Medical College, at Charleston, South Carolina.

To those who observe the progressive advancement of Medical Science, nothing so attracts the attention, or excites admiration, as the boldness with which modern Surgeons have successfully attacked diseases, heretofore considered nearly incurable. In the operation of ovariotomy, we find one of these triumphs of modern surgery. The common cystic diseases, to which the ovaries of both single and married females are liable, have up to within a few years, withstood all efforts at treatment, making early victims of those attacked.

From the moment that ovarian excitement commences in puberty, until the change of life, with atrophy of the organ, the disease might appear, through some perverted nutrition of a Graaffian vesicle. For some months, no special annoyance is felt, and it is often by accident that a round ball is found in the lower portion of the abdomen. This grows more or less rapidly, in time so distending the abdominal cavity, and compressing injuriously the contained organs, as seriously to interfere with the vital function of respiration, circulation and digestion. At the same time the size and weight of the collection produce great deformity and materially impede locomotion. Life becoming a burden, relief is sought, and is furnished in a very temporary form, by the Surgeons. He taps the woman, draws off several quarts, or even gallons of fluid, and awakens hopes of a permanent cure, by removing for the time, the protuberance, with its annoying weight and pressure. But this apparently slight operation is not always done with impunity. At times, inflammation of an aggravated form is lit up in the peritoneum, or in the sac which has been emptied, and, after much suffering and great dangers, the patient only escapes with her life. A certain number succumb to this first tapping.

The patient, fortunate in eluding the dangers of the first operation, has scarcely commenced to enjoy the advantages of her improved condition, when she perceives her abdomen again swelling. In a few weeks or months, she is as much distended as before, with a return of all of the distressing symptoms from pressure, she having less strength to bear up against them. The rapid reäccumulation, and the renewed disturbance to functions, have brought with them a certain amount of debility. Nothing is left to her, in her continually increasing distress, but to be again tapped, hoping that she may have a longer interval of comfort after the second operation; a delusive hope. Experience has too surely proved to the Surgeon, that each successive tapping, is only followed by a more speedy reäccumulation and greater prostration, and that each operation is performed at a cost of so many weeks or months of life, if existence, under such suffering, can be so called. Besides, each consecutive operation is by no means devoid of danger from inflammatory excitement. The rapid growth of the tumour makes heavy demands upon the nutrition of the system, causing progressive debility with emaciation. The more feeble the patient becomes, the more rapid and excessive the accumulation, with greater disturbance of functions. The patient finally has not strength to stand, yet cannot breath when lying down. Annoying symptoms of dyspepsia indicate the disturbance in the functions of the digestive apparatus, and the swelling and œdema of the legs show too clearly the embarrassment to the returning circulation, through the trunk. At last, the patient becomes too feeble to bear even the customary tapping, and either dies under the operation, a fatal syncope coming on as the fluid, for the last time, is drawn away, or has her vital powers gradually exhausted under the continuously increasing disturbance of the circulatory, respiratory and digestive systems.

In very rare instances, the sac of an ovarian tumour has undergone atrophy after the operations for tapping. This very favourable result can only occur in simple cystic formations, which are not often met with. Much more frequently the disease is multilocular, and, as a rule, the tapping, which is not often required to relieve the distension, until two years from the commencement of the disease, rather hastens the end. Patients usually die within two years from the first tapping, although cases are met with, in which life has been prolonged for a much greater period. Simple cysts, with serous contents, have also been successfully destroyed by iodine injections; but as the cure is as much the exception, as the finding of such a simple cyst, it is not a remedy to be relied upon in ovarian disease.

Until ovariotomy was introduced to the Profession, and established through the labours of T. Spencer Wells, Baker Brown, Clay, Keith and others, in Great Britain, as a justifiable and safe operation, ovarian cysts were not considered curable diseases. Their prognosis was invariably bad, and their termination uniformly fatal. In ovariotomy, we have a radical môde of treatment. *By extirpating the cysts, with their ovarian nidus, we cure the disease, without fear or possibility of relapse.* The patient often recovering from the operation of ovariotomy is restored to perfect health, with the full enjoyment of all the functions appertaining to that condition.

When we remember the dread with which a wound into the abdominal cavity was held by all Surgeons, and the terror with which a large number still regard such an accident, we can appreciate the obstacles against which the pioneers in ovariotomy had to contend. The cutting open of a woman, to effect the removal of a disease, the fatal tendency of which is universally acknowledged, was denounced as criminal, by those who had neither the boldness to conceive, nor the courage to test so radical a plan of relief. Unfortunately, this timidity is not altogether dispelled; and although some of those suffering from cystic diseases of the ovaries, are fortunate enough to be able to seek council of the few Surgeons who practice ovariotomy, and many of these are cured in the fullest acceptation of the term, yet many are dying yearly, because their medical attendants are either ignorant of the means of relief, or are afraid to use them.

It is surprising what liberties can be taken with the peritoneum Experience is daily dispelling the imaginary dangers, with which ignorance invested injury to this surface. Exploratory openings into the abdominal cavity are not generally followed by serious consequences. There is no reason why Surgeons should not generalize operations upon the abdomen, accidents having proved that intussusceptions or intestinal obstructions, threatening a fatal issue, might be relieved through an exploratory opening in the linea-alba, and that several inches of intestine may be removed with safety to the patient.

Our object, however, is not to defend the lawful and legitimate operation of ovariotomy, for it can safely take care of itself. It is now recognized among the established operations in surgery, and when properly performed, is fully as successful as the ordinary amputation upon the large limbs which every Physician performs. As successful results, depend to a great extent upon the delicacy of manipulation, my desire is rather to detail the various steps in the operation of ovariotomy, as it is performed by those who make a specialty of it, and to whom the Profession have deservedly accorded praise. I have seen ovarian tumours removed by general Surgeons, and by those who restrict their operations especially to the surgical diseases of women. I have also seen them operated upon in several hospitals, in special surgical homes, devoted to this class of patients, and in the private practice of special Surgeons. I have traced, with much care, the progress and final termination of these cases under these varied conditions, and my experience fully confirms the opinions generally expressed by all those who are familiar with this operation, viz: that successful results are usually obtained through nice manipulation, and moreover, that in those cases in which the rules, now well established by experience, are not carefully followed, unfortunate terminations are often met with. Statistics exhibit this very clearly. The smallest mortuary per centage is found in the practice of the few special Surgeons, who have every convenience for treating ovarian cases, who follow rigidly all the details in the performance of the operation, which experience leads them to value highly, and who have skilled nurses to take charge of their patients, until they have passed through the dangerous period to convalescence. Their cures far exceed, in number, those of general Surgeons, in general hospital practice. Mr. T. Spencer Wells has nearly completed his two hundred operations, and Mr. Baker Brown has, up to this time, performed ovariotomy 110 times. The operation is now generally recognised, in England, as a good one, and these gentlemen as the most skilled in its performance. The rules which they have laid down as the results of their extensive experience, are orthodox upon this subject. I will describe, in detail, the procedure as obtained from a careful study of the practice of Mr. Spencer Wells and Mr. Baker Brown, feeling satisfied that if carefully followed, our Surgeons will be able to add a number of brilliant cures to the list of successful operations.

The first step necessary in ovariotomy, is the thorough examination of the patient presenting for operation. If her general condition be good, without marked and serious constitutional or hereditary disease; brain, lungs and kidneys performing healthy functions: not too much debility from long-standing ovarian disease or peritoneal inflammatory complications, nor strength wasted from too often repeated tapping, the case may be considered as clearly within the pale for successful operation. The next item of moment to be determined, is the condition of the ovarian tumour, its origin, size, form, character, consistence, structure, duration, relations, its complications, and the existence, character and extent of its adhesions to surrounding adjacent structures; also, as to the condition of the uterus, whether complication of uterine diseases exist, as fibroid tumours, &c. Although some of these conditions cannot, with certainty, be determined, still enough information can be obtained in relation to most of them, to map out, in advance, the probable simplicity or danger of the operative procedure.

The patient is usually taken under immediate observation ten days before the day of operation, so that her condition can be carefully examined into, irregularities corrected, tendency to constipation overcome, the system improved by dietetics and stimuli, and the full benefit of rest obtained, through quiet, and if necessary, anodynes. By means of warm baths, taken at bed-time, the skin is placed in the best condition for carrying on, to the fullest extent, its proper function. The day for operation is selected in the interval of the catamenia, usually a few days after menstruation, when the periodical congestion and irritability of the pelvic organs have subsided. The night prior to the operation, the patient takes a warm bath, and on the morning of the operation has the bowels acted upon by an enema. The bladder is emptied of urine immediately before she is put upon the operating table. The operating room, always a small one, is warmed so as to have the temperature above 80° Fah. Chloroform is always administered, and the patient kept under its influence until the operation is completed and she is returned to bed. Prior to being placed upon the table, the patient is clothed in flannel from the neck to the knees, loose drawers and wrapper, opening in front, so as to expose the entire abdomen. As it is desirable to disturb the patient as little as possible after the operation is completed, her clothing is protected during the removal of the tumour, by covering the whole with a sheet of India-rubber cloth, in the centre of which an oval hole is cut eight to twelve inches wide, and from twelve to eighteen inches long. The edges of this opening, on its under surface, for an inch in extent, are smeared with an adhesive substance, which sticks them firmly to the outer border of the abdominal surface. This leaves the entire central portion of the abdomen, from ensiform cartilage to the symphysis, exposed for the operation, whilst it prevents any cystic fluid from soiling the clothing of the patient.

The instruments generally used in ovariotomy, are a bistoury for making the abdominal incision, a probe-pointed knife and wide grooved director for enlarging the opening in the abdominal cavity, spring forceps and ligatures for controlling hæmorrhage, a large trocar and canula for emptying the cyst, strong vulsella forceps, for seizing and holding the cyst in contact with the abdominal walls, so as to prevent cystic fluid from escaping into the peritoneal cavity, a clamp for securing the pedicle, and needles for applying sutures for closing the wound. To these instruments are added cauterizing irons; if it be the intention of the operator to destroy the pedicle with the actual cautery. At every step of the operation there will be a constant demand for soft clear sponges, of which a good supply should be at hand.

The operation is commenced by making an incision, according to the size and character of the tumour to be removed, of from four to six inches in length, in the median line, below the umbilicus and terminating near the pelvic region. The tissues are divided by careful dissection, and all bleeding vessels, which are usually small, should be secured by spring forceps or torsion, or the wound kept dry by continual sponging. The peritoneum is exposed, and opened at some point of the wound, and often some ascitic fluid escapes by this puncture, as a serous exhalation from the peritoneum is not an uncommon complication with ovarian tumour. Through this small opening, the polished face of the cyst will be at once recognized, its more or less pearly appearance depending upon the thickness of its walls, and the depth of colour of its contained fluid. A broad grooved director is inserted into this peritoneal opening, and the membrane is incised to the fullest extent of the external wound. At this stage of the operation, the right hand is slid in between the integuments and the tumour, to seek for and break down any adhesions which may exist between the cyst and the inner face of the abdominal walls. Very often none will be found; frequently they exist in greater or less quantity, requiring some effort to destroy them ; and in very rare cases the anterior surface of the cyst is so intimately adherent to the peritoneum, at the linea-alba, that it is impossible at first to distinguish the line of intimate adhesion. In these very rare cases it is only by extending the incision upwards, until the peritoneal cavity is opened, and the intestines are brought to view, that the exact relations between the cyst and abdominal walls can be determined and their separation effected.

The next step of the operation consists in emptying the prominent sac. This movement requires much care to avoid introducing cystic fluid into the peritoneal cavity. Should any, by accident, enter, it must be removed by sponging, and the irritation of this handling of the peritoneum, with the decomposition of such fluid as may have been unavoidably left in the cavity, enhance the dangers of consequitive peritonitis, a very serious, and often fatal complication. As the fluid is nearly always thick, a very large tube is needed to allow of its ready escape from the cyst. A special trocar and canula is made use of for ovariotomy. It consists of a tube or canula six inches in length and half inch in diameter, within which plays a second tightly fitting tube as trocar, one end of which, is beveled off to resemble a sharpened finger nail. This, when protruded from within the cylinder, forms the cutting portion of the instrument. To the other extremity of the canula, is attached a piece of India-rubber tubing, which will conduct the cystic fluid into a vessel placed beneath the operating table for its reception. After perforating the cyst, the sharp protruding trocar is drawn by means of a spring, into the canula; a second spring opens the calibre of the canula, and allows the cystic fluid to escape. After perforation, the tumour becomes rapidly flaccid. From its collapsed walls, the canula would escape and cystic fluid would enter the abdominal cavity, if the assistants did not keep the abdominal walls in close contact with the cyst, by pressing, with their out-spread hands, upon the abdomen, the Surgeon, at the same time, seizing the cyst wall with a strong vulsellum forceps, and keeping it well drawn forward. The most approved trocar and canula now in use by ovariotomists, have attached to a lever two semi-circular bars, armed with short teeth, which, acting as vulsella forceps, can hold the cyst wall firmly to the canula, and thus prevent any cystic fluid escaping, except through the tube.

As the sac is emptying itself, it is drawn forward until the whole of the tumour escapes through the incision. It is often found that atmospheric pressure upon the tumour, holds it firmly wedged into the pelvic excavation. The fingers introduced between the mass and the pelvic rim, is immediately followed by the rushing in of air, and the tumour, now freed, can be drawn out with facility. If the cyst is tied down in the abdominal cavity, by adhesions to the viscera, the hand must be inserted, and the adhesions torn through. In some rare cases, the adhesions of the cystic tumour to the pelvic rim, or the bladder and rectum, are so intimate and firm, that dissection is needed to isolate them; and in one or two cases, the Surgeon has thought it advisable to leave portions of the cyst wall, rather than run the immediate risk of tearing through the iliac veins or open into the visceral cavities. If the mass be composed of multiple cysts, such cavities can easily be punctured and emptied through the first cyst, by changing the direction of the trocar. One of the cardinal rules in the operation, is to extract the tumour through a small opening in the abdominal walls, and therefore, every safe means must be made use of for reducing, to its minimum, the cystic mass to be extracted. Even the solid matter of the mass, may be broken up by introducing the hand into the cavity of the emptied cyst. If, when the fluid has been all drawn off, and the tumour reduced as much as possible, the mass is found still too large to be withdrawn through the wound, the incision in the abdominal wall is extended upward until a sufficient opening is effected. Either a probe-pointed bistoury, or a strong pair of scissors is made use of in enlarging the incision, and it is customary to cut around rather than through the umbilicus. As the tumour glides through the opening, it must be carefully supported to prevent traction upon the uterus. Upon its escape, an assistant draws the lips of the wound together, closing the peritoneal cavity. When the tumour has been drawn from the abdominal cavity, any adhesions of omentum must be carefully torn off and left, for the moment, lying upon the abdomen until bleeding from its torn vessels ceases, or the bleeding vessels can be secured. If these various steps of the operation have been carefully performed, the edges of the wound assiduously sponged, and bleeding vessels compressed by spring forceps, and the abdominal walls kept in constant apposition with the sac, whilst the fluid is being drawn off, no extraneous fluid could have entered the peritoneal cavity. Up to this point the method of operating by the various Surgeons, is nearly identical, differing only in a few minor particulars. Mr. Baker Brown, instead of sponges, prefers the use of pieces of flannel to protect the peritoneal cavity. The integumentary walls, as soon as divided, are enveloped in a fold of soft clean, moist flannel, which receives any oozing that might take place from the small divided vessels, and also any cystic fluid which might escape by the side of the inserted trocar. When adhesions to the omentum are torn through, the omentum, which he leaves temporarily upon the abdomen, he also protects by enveloping it in a piece of flannel.

The next step of the operation, is the disposition to be made of the pedicle of the tumour, and here we find the specialists varying their operation. Mr. Wells encloses the pedicle of the tumour, formed of broad ligament, in a powerful clamp, which, when firmly applied, is kept in position by a screw, and the handles of the clamp are then removed. All the tumour is cut off in front of this clamp, leaving the instrument attached to the pedicle. The clamp remains outside the wound, upon the abdomen, grasping firmly the pedicle. If the omentum has been adherent, and a bleeding portion left out of the cavity, it is next examined. If very much torn, a stout silk ligature is applied to the mass, by transfixing it with a double-threaded needle, behind the torn portion, and then cutting away all the ragged portion in front of the ligature. Where the general appearance of the omentum is good, and a few bleeding vessels are seen, they are ligated, separately, with fine silk, the ends of the threads cut off close to the knots, and the mass of omentum returned into the abdominal cavity. Mr. Wells has had occasion to apply as many as twelve ligatures to bleeding points in the omentum and lining surface of the peritoneum, and has experienced no trouble from their presence in the peritoneal cavity. Should any blood or cystic fluid have escaped into the abdomen, it must be carefully removed, using for that purpose new, fine soft sponges previously dipped in warm water. I have seen as many as thirty of such sponges introduced into the peritoneal cavity. Before closing the external wound, the pelvic viscera are examined, and any cystic disease of the remaining ovary brought to light and removed. If large, a clamp must be applied to its pedicle also; if the cyst be a small one, with nearly transparent walls, it will only be necessary to break it up, emptying its serous contents. The existence of fibroid tumours of the uterus should also now be determined, but they should not be removed, the temptation of an operation upon these growths, adding always very serious and most frequently, fatal complications to the ovariotomy.

The next step of the operation consists in closing the abdominal wound. Silk sutures are made use of by Mr. Wells, and applied three-fourths of an inch apart—the needle transfixing all the tissues, including the peritoneum, at the distance of fully a half inch from the edges of the incision. In tying the threads, commencing from the upper extremity of the wound, the two surfaces of peritoneum, between the needle punctures and the edges of the incision, are brought in contact, so as to ensure rapid union. As the clamp resting upon the lower portion of the abdomen, keeps the pedicle between the lips of the incision, the most inferior suture makes the wound hug the pedicle very closely, keeping the abdominal peritoneum in such intimate apposition with the peritoneal covering of the pedicle, as to ensure the immediate fusion of these two surfaces. If the pedicle be so short, that the clamp, in its proper position upon the external surface of the abdomen, exercises traction upon the uterus, which experience has shown to be detrimental and often fatal from peritonital inflammation excited, Mr. Wells applies to the pedicle a double ligature, by transfixion. When securely tied, he cuts off the ends of the short whip-cord ligature, close to the knots, and allows the pedicle, with its double ligature, to drop into the pelvic cavity. Transfixing the pedicle, and securing its halves by a heavy ligature, is a very important point, never to be omitted. If an ordinary thread be thrown around the pedicle, as soon as the tumour is cut off, the stump rapidly disgorges its fluid, the mass shrinks, and however tightly the cord be tied, it will soon become loosened, and the ligature will slide off from the end of the pedicle. As the stump always contains the large nutrient vessels of the ovarian mass, under these circumstances, fatal hæmorrhage must rapidly ensue. The transfixion of the stump, by the needle, is a safeguard against this fatal accident. In one of the cases, which I saw operated upon, this important law was not followed by the Surgeon; the pedicle appeared very firmly tied by a single noose, and the thread was deeply, and apparently safely embedded. A fatal collapse suddenly came on a few hours after the woman was put to bed. An autopsy revealed the abdomen full of blood, and no ligature upon the pedicle, which had spread out to its proper form of broad ligament. The needle, in transfixing the pedicle, at times, may also traverse some one of the many vessels, which lie in its substance. As each half of the pedicle is separately secured, the puncture is widened by the drawing of the threads, and fatal hæmorrhage from this puncture has been met with. To avoid any danger from this accident, it is only necessary, having secured the second ligature, to bring the ends back again around the entire mass. The return thread, which is now secured around the entire pedicle, as a second ligature, lies in the grooves made by the first. The apposition by a third ligature of the two portions of the pedicle, which had been separately tied, thoroughly closes the punctured orifice, from which there is now no possibility of hæmorrhage. In ligating en masse, of vascular tissues, as omentum, pedicles, &c., it is an excellent precaution to compress, by this means, the puncture made in transfixing, for a double ligature. The ligation in mass, provided the thread lies in the grooves made by the first ligatures, preventing all accidents from hæmorrhage.

When the deep sutures have all been tied, should the skin gape at any point, its edges are brought together by superficial intermediary sutures; a layer of wadding is then put over the wound, and the abdominal walls supported by long and broad strips of adhesive plaster, the whole being covered and additional support given, by securing the abdomen in a broad body bandage or flannel band, tied or laced in front.

The operation of Mr. Baker Brown differs in many essential particulars from that of Mr. Spencer Wells. He lays even more stress upon rigid adherence to the rules mapped out as essential by experience, viz: to delicacy of manipulation, and to extreme protection to peritoneum, allowing no handling of this surface. As soon as the peritoneal cavity is opened by the usual incision of from four to six inches in extent, below the umbilicus, the assistants (one standing on each side of the patient) envelope the lips of the wound in a fold of fine, soft flannel, which has been wrung out in warm water. Besides protecting the peritoneal surface of the wound from handling, the flannel is a receptacle for any oozing from the cut surfaces which might otherwise trickle into the abdominal cavity, and it is also in place to absorb any cystic fluid which might escape externally from the trocar puncture. The cysts are emptied, as by Mr. Wells, and as the fluid escapes through the special ovariotomy canula, the hand is slid into the abdominal cavity to break down any existing adhesions with the viscera or abdominal walls. The out stretched palms of the assistant, pressing upon the abdomen, assist in the emptying of the cysts, and the expulsion of the tumour; also in the general support of the splanchnic vessels. Should adhesions to the omentum be torn across, the ragged and bleeding portion of omentum is drawn out of the cavity, temporarily enveloped in a piece of clean, soft, warm flannel, and left out upon the abdomen for further examination. As soon as the diminished mass escapes through the wound, the lips of the incision are drawn together by an assistant, so as to exclude as much air as possible from the peritoneal cavity. Upon the pedicle, now brought to view, is firmly applied a powerful clamp, four inches long, with rough walls half inch in depth, which are closely screwed together, so as to act as a broad, rough crusher of the pedicle, which, under the pressure, is flattened out into a broad, thin ribbon. As the actual cautery is to be applied upon this clamp, the upper surface of the blades is lined by some non-conducting substance, usually a layer of bone. The ovarian mass is now cut off about an inch from the face of the clamp. Preparatory to applying the edge of a wedge-shaped cauterizing iron, heated to redness, so as to burn off the remnant of the tumour left, to a level with the anterior face of the clamp, the parts beneath the instrument are well padded with damp soft pieces of flannel, in order to protect them from radiating heat, and also from any hot fluids liberated in the frying of the pedicle, which might accidentally run down into the abdominal cavity, if the flannel was not present to receive them. The piece of pedicle above the clamp, is seized by two pair of dissecting forceps and is made tense, whilst the Surgeon passes slowly, to and fro, the red hot iron, its edge being applied to that portion of the pedicle immediately above the anterior face of the clamp. The iron, as it becomes chilled, is replaced by a second, third and even fourth, should so many be required to burn through and separate the free portion of the pedicle. When the separation is effected on a level with the surface of the clamp, only a linear cauterization upon the free edge of the pedicle is seen. This cauterization shuts up by the firm coägulation of all the albuminous juices of the part, the free opening of all vessels, converting the free edge of the pedicle into a hard linear crust. Great stress is laid by Mr. Brown, upon slow cauterization, which he thinks essential to success. By his method, it requires from two to ten minutes to burn through a pedicle; the time required depending upon the thickness of the mass to be destroyed. The bleeding omentum, if much torn, is in turn, enclosed in a similar clamp and the ragged portion removed in the same way, by repeated applications of cauterizing irons. Protection to the remaining omentum, by flannels placed under the clamp, is required, to prevent the hot grease, melted by the heat, from running down upon the peritoneum, and producing the inflammation, which we are so desirous of avoiding.

The pedicle and omentum having been cared for, a hasty glance is made into the peritoneal cavity, and any oozing from points of the surface, to which the tumour had adhered, is controlled by touching the bleeding surface with the actual cautery. During the various steps of the operation, every precaution should have been taken to prevent extraneous fluids from entering the peritoneal cavity. Should there be a little blood which had escaped from some internal bleeding point, it must be wiped out with great delicacy, touching the surface as lightly and as seldom as possible. The longer the clamps remain upon the pedicles, the safer for the control of hæmorrhage. They are not removed until just before closing the lower half of the abdominal wound.

In closing the wound, Mr. Brown uses a number of long staff needles, with eyes at their points. At first, half a dozen of these are made to transfix the lips of the wound half an inch apart. The needle is applied obliquely, so as to transfix the skin half an inch from the edge of the wound, the point protruding on the inner surface at the very cut edge of the peritoneum, so that when the two lips are brought into juxtaposition, only the cut edges of the peritoneum are brought in apposition, and not the peritoneal surfaces, as in the method adopted by Mr. Wells. The needles having been passed for the upper half of the wound, are each in turn threaded with a silver wire, drawn out, and the wire twisted. When half of the wound has been closed by silver sutures, the clamps are then carefully removed—first from the omentum, and lastly from the pedicle of the cyst. The clamp is opened very slowly, the free surface of the pedicle being watched with great care. Should any oozing of blood appear between the relaxed blades of the clamps, they should be immediately reclosed, and the actual cautery reäpplied to the bleeding point. Should no bleeding occur, one branch of the clamp is removed, leaving the crimped pedicle fluted and slightly adherent to the remaining blade, to the surface of which the coägulated fluids had attached it by a thin crust.

Experience having given the assurance that the pedicle is now safe from hæmorrhage, the remaining branch of the clamp is twisted slowly upon its axis, when the weight of the pedicle and its traction upon the uterus, break the adherent crust, and the free edge of the pedicle becomes detached from the instrument. Should it still adhere, notwithstanding this movement of the clamp, it must be detached, by scratching through the crust, *upon the surface of the blade*, with the finger nail, *every precaution being taken not to touch the free edge of the pedicle*, for fear of disturbing the little crust, in the continuity alone of which resides the safety of the patient. At no time must the pedicle be touched either with the hand or with forceps, unless some accident happens, as the bleeding of a vessel immediately after the removal of the clamps, when the bleeding point should be seized and a fine silk ligature applied, the ends of this being cut off close to the knot. When the pedicle has isolated itself from the clamps, its free end, for one-half inch in depth, appears fringe-like, from the squeezing to which it has been subjected, the edge of this fringe being marked by a dark-brown line of cauterization. By degrees some of the crushed blood-vessels expand as, slowly, the blood is seen creeping into them upwards to the line of corrugation, meeting, however, at every step, obstacles to progress in the crushed and roughened linings of the vessels. The whole impetus of the circulation apparently has been destroyed through this crushing. The blood has no force to break through the extreme border hardened by heat, yet enough of this nutrient fluid circulates in the crushed end of the pedicle to ensure its vitality. Unless hæmorrhage appears simultaneously with the removal, or rather relaxation of the clamp, it is not likely to occur, unless through carelessness in detaching the pedicle when adherent. Every moment after the cauterization adds to the security of the patient, by increasing the corrugation and solidity of the cauterized border. The very moderate pressure exercised upon the base of the pedicle, through the apposed lips of the abdominal incision has so far kept the pedicle in situ. Now that no hæmorrhage is likely to occur, the lips of the wound are drawn asunder and the pedicle slowly descends, until it is lost to view in the pelvic cavity, the pedicle of the omentum having previously passed in, with similar precautions, into its normal position The remaining portion of the wound is now carefully closed by silver wire sutures, applied, as in the first instance, half an inch apart. Any gaping points of the wound are closed by superficial silver sutures passing only through the skin. The usual compresses of lint and adhesive straps are applied, and a broad flannel band, snugly secured by tapes, keeps every thing in place and exercises a comfortable support over the entire abdomen.

The after treatment of the case does not materially differ in the practice of special Surgeons. All agree that the Surgeon should put the patient comfortably to bed, with warmth to the feet, &c., to bring about healthy reäction. During the first twenty-four hours, no food is taken by the mouth, for fear of exciting vomiting. An enema of beef tea is given five or six hours after the operation, and repeated at intervals, and should there be much depression, brandy and water are administered in the same way. Excessive vomiting is controlled by the usual means, of which small pieces of ice are the most relied upon. Should the patient suffer pain, or be restless, an opium suppository is introduced into the rectum, and, if necessary, repeated—none being given by the mouth, for fear of exciting nausea. Five hours after the operation, Mr. Brown applies a large meal poultice to the entire abdomen, and renews it repeatedly for thirty-six consecutive hours. The line of wound is not exposed to this application, as the compress of lint intervenes. The patient always derives much comfort from the soothing effect of this remedy. The patient is kept absolutely quiet and at rest, under the constant care of an experienced nurse. For several days she lies upon the back, using no muscular effort. For three or four days there will be no action from the bowels, and as any accumulation of urine in the bladder would cause much pain and restlessness, the catheter is introduced three or four times in the twenty-four hours, and the urine is drawn off for several days after the operation.

Mr. Wells removes all the sutures by the fifth day, and contends that, up to this time, metalic sutures have no preference over silk—the silk, on the contrary, having the advantage of easy and painless extraction. After the fifth day, the fluids absorbed by the thread sutures would commence to decompose and irritate the wound, which would not be the case with the silver wire. The wound is usually perfectly adherent in forty-eight hours, and often the sutures can be removed as early as the third day, broad adhesive strips of course supporting the as yet weak adhesions. Mr. Brown seldom removes sutures before the fifth day, and usually not before the seventh, taking out daily the alternate sutures. In Mr. Wells' operation, the portion of the pedicle compressed by the clamp, and remaining out of the wound, sloughs off. The clamp must not be removed until it becomes loosened from the shrinking suppurating pedicle, which is rarely as early as the fourth day, usually about the tenth, and at times as late as the fifteenth day. Some disinfecting powder or lotion is applied to the decomposing tissues, to prevent irritation or annoyance from the fœtid fluids and gases, which would otherwise escape. The dry perchloride of iron is an excellent dessicating powder, making a leathery, inodourous mass of the protruding portion of the pedicle.

Should the case progress favourably, the patient is retained in bed for two weeks, and is then allowed gradually to take exercise. Should peritoneal inflammation occur, it must be combated by general treatment. It is not unusual for the catamenia to appear a few days after the operation, and when the clamp is retained upon the pedicle in the wound. Simultaneously with the catamenia, a bloody fluid, at times, escapes from the pedicle through the Fallopian tube, which, with the broad ligament, is enclosed in the clamp, and which may not have yet become occluded. When this condition is recognized, and not mistaken for hæmorrhage from the vessels of the pedicle, it excites no alarm.

The prognosis of ovariotomy cases, will depend upon the care with which examination into the general condition of the patient has been made. Upon properly selected cases, the operation may be performed with comparatively moderate risk, and with very fair hope of recovery. In another series of cases, the hopes of recovery, or the fears of a fatal result may be equally balanced. In a third series of patients, death being certain from the continued progress, and already advanced stage of the ovarian disease, and there being a prospect of cure from the operation, it is the duty of the Surgeon to explain fully the case to the patient and her friends, stating the probable duration of life under suffering, and the perfect restoration to health, if the operation succeeds. The risks of failure, and the prospect of shortening her suffering by a few weeks or months, in her effort to obtain health, must also be clearly laid before them, and the operation is to be undertaken upon such extreme cases only, at the solicitation of the patient, and not upon the responsibility of the Surgeon. All things being equal, the younger the patient, and the more recent the disease, the better the prospects for success. The following is a table of 150 cases, operated upon by Mr. Spencer Wells:

Ages.	No. of Cases.	Recoveries.	Deaths.	Mortality.
15 to 20	7	7	0	0 p. c.
20 to 25	17	13	4	23.41
25 to 30	18	11	7	38.80
30 to 35	24	15	9	37.50
35 to 40	20	13	7	35
40 to 45	22	18	4	18.45
45 to 50	13	10	3	23.07 p. c.
50 to 55	15	8	7	46.66
55 to 60	13	8	5	38.46
60 to 65	1	1	0	0

As a rule, married or single life does not materially affect the final results. The per cent. of mortality, for single females, who have undergone the operation of ovariotomy, being 33.96 and for married females, 34.04. Provided it be a simple cyst, its large size does not increase the dangers of the operation, nor does a moderate amount of adhesion between the tumour and the abdominal viscera. In cases in which there were no adhesions between the tumour and viscera, the mortality was 34.50 per cent., whilst in fifty-nine of the cases in which extensive adhesions were found, only 34.00 per cent.

of the cases were fatal. It is only in cases of intimate adhesion, between the tumour and the pelvic viscera, in which it is necessary to dissect the cyst from the bladder, rectum or uterus, or in which the iliac veins are opened in separating the adherent cyst from the pelvic peritoneum, that bad results are to be feared. In some very rare cases, the adhesions of the cyst to the pelvic viscera, are found so intimate, that it is considered safer for the patient to leave portions of the cyst wall attached to these viscera; cutting away all loose portions, rather than make fatal complications by a desire for too much nice dissection. In a very few cases, the adhesions are found to be so general, and they bleed so freely when attempts are made to tear through them, that rather than have the patient bleed to death upon the table, further attempts at removal are desisted from. In these unfortunate cases, the abdominal wound is closed, and the disease, from necessity, allowed to run its own course. The conclusion, safely drawn from the above statistics, is that as a moderate amount of adhesions does not in any way affect the final results of the operation, the diagnosis of such adhesions before the operation, is not an item of much moment.

We have already said that the size of the tumour, provided the cyst be a simple one, does not materially affect the result, but the size and solidity of the mass, requiring a very extensive opening in the abdominal cavity for its removal, will materially increase the risk. The operation always becomes more dangerous when it is necessary to enlarge the incision above the umbilicus. The probable results of the operation, however, are more intimately connected with the general condition of the patient than with the size or solidity of the tumour. If the heart, lungs, eliminative and digestive organs are healthy, even with a large solid tumour, the prospect of a succeesful operation is much greater than in cases of comparatively small tumours, in unsound or broken down constitutions, with serious disturbance of the eliminative or assimilative functions. Complication with kidney diseases, are more particularly serious, and such cases with ovariotomy are nearly always fatal.

As the opening into the abdomen, per se, is not a serious operation, Surgeons, at times, yield to the urgent solicitations of patients and their friends, and make an exploratory incision, where the suspected complications are such that there is no hope of recovery from ovariotomy, nor is there any intention of completing the operation, the incision being solely to verify the diagnosis, and show those deeply interested in the patient, the hopelessness of the case. In obscure cases, an exploratory incision may be made to clear up the diagnosis, the Surgeon being prepared to complete the operation, should the conditions found warrant such a course. The operation of tapping is also often used to clear up the diagnosis, by relaxing the abdominal walls, and permitting a thorough examination of the mass. It also gives temporary relief by diminishing pressure and distension, so that a feeble patient can be better prepared in this more comfortable condition, by diet, tonics, &c., to undergo the more serious operation of ovariotomy. The common effect of the tapping is to excite adhesions between the anterior surface of the tumour and the abdominal walls, which adhesion we have already seen, does not increase the dangers of ovariotomy. Some of the successful cases, in the above table, had been previously tapped, as often as eight and ten times, and a very large number had undergone the operation of tapping.

In the successful cases, the patient is usually discharged perfectly cured, at the end of the third week, and free from all danger of a relapsè, at least on the side operated upon. One or two cases are reported, in which a second operation for ovariotomy, had to be performed for cystic disease of the opposite side, which developed itself some years after the first operation. Perhaps had the pelvic viscera been examined during the first opening of the abdomen, as is now the rule of procedure, small cysts then existing, would have been detected and removed so as to obviate the second serious gastrotomy. Many cases are now on record, in which pregnancy and safe delivery have taken place after the removal of one diseased ovary.

We may now sum up a few fundamental rules for the successful guidance of Surgeons in ovariotomy.

1. Make as small an opening in the abdomen as possible, compatible with the extraction of the diseased mass reduced to its smallest size, by tapping the cysts, breaking up the interior of the tumours, &c.

2. So protect the cavity of the abdomen, and manipulate the reduction of the tumour, as to allow no extraneous fluid, either blood or cyst contents, to escape into the peritoneal sac ; and when by accident, such fluids have been admitted, remove all of them with extreme care, manipulating delicately, with new, soft sponge, warmed in water of about 100° of Fah. It must not be overlooked, that the sponging of the peritoneal cavity, adds much to the dangers of the operation, and therefore, every precaution should be taken, during the operation for ovariotomy, to prevent the accidental introduction of extraneous fluids.

3. During the various steps of the operation, handle the peritoneum as little as possible, and permit no curious assistants, to explore the abdominal cavity.

4. Secure the pedicle against hæmorrhage, either by the use of the actual cautery, the clamp, or the ligature. The treatment of the pedicle is one of the most important points of the entire operative procedure. When the pedicle is long and narrow, so that no traction is exercised by the clamp upon the uterus, clamping the pedicle and allowing it to slough off on a level with the external abdominal surface (Spencer Wells' operation), is followed by good results. When the pedicle is very short, the traction exercised by the clamp, upon the uterus, occasions such pain in the back and thighs, with abdominal disturbance, and the clamp so painfully depresses the wound, that it has to be removed early. This removal, with the escape of the pedicle into the cavity, and the opening of the abdominal wound, is of course not unassociated with danger, an item of very great importance in the success of the operation being that the abdominal cavity should be hermetically sealed by the rapid union of the incision. When the pedicle is too short for the resident clamp, and a stout ligature is applied to it, its ends cut off close to the knot, and the pedicle, with its thread, a foreign body returned into the pelvic cavity ; or should the long ends of the ligature be left out of the lower portion of the abdominal wound, the results are by no means so satisfactory, and the mortality in such cases will be nearly doubled. Inflammatory accidents very often follow upon the ligation of the pedicle. Abscesses form in the posterior cul de sac, between the uterus and rectum, a large amount of lymph hav-

ing been thrown out in this region. To obtain relief from the distressing symptoms accompanying this deposit, a free drainage must be established from this pouch, through the posterior cul de sac of the vagina, a serious complication to the first operation. According to my own observation, the safest and most successful method of treating the pedicle, is by using the actual cautery upon a broad crushing temporary clamp. This method of procedure is applicable to all cases, whether the pedicle be long or short, thick or thin. It has the great advantage of introducing the smallest amount of foreign matter (the line of cauterized surface) into the peritoneal cavity, causing no painful traction or displacement of the pelvic viscera and permitting perfect apposition of the abdominal wound, which is the fifth important rule.

Mr. Baker Brown, to whom the Profession is indebted for this valuable method of treating the pedicle, claims ninety per cent. of successful cases in the thirty which he has operated upon since adopting the actual cautery. He had been very unfortunate in his previous operations with the clamp and ligature having lost thirty patients out of the sixty cases operated upon by him.

ART. II.—INTESTINAL DEJECTION OF STARCH. A Paper read before the Richmond Academy of Medicine. By O. FAIRFAX, M. D., Richmond, Va.

On July 23d, a middle-aged gentleman, previously in good health, and leading an active life, consulted me in regard to a fixed pain in the epigastrium, and extending up toward the left shoulder. There was no tenderness upon pressure, nor nausea, nor fever. His appetite was not much impaired, and his bowels were said to be in a natural state. After two or three days' use of counter-irritants and light medicines, chiefly a solution of acetate of potash, he was relieved of the pain, and returned to the pursuit of his business.—On the 29th I was recalled to him, and found him suffering severely from the epigastric pain and with a very irritable stomach and constipation of the bowels. The vomiting became so frequent and severe that, for days, scarcely any medicine was given by the mouth, but he lost six or eight ounces of blood by cups, and had frequent and large enemata, of soap and water, thrown up through a stomach tube, (which could in no instance be passed more than six inches into the rectum,) and got great relief every night from two-thirds of a grain of morphia, given hypodermically. He was also temporarily relieved, several times, from pain, by the inhalation of chloroform, by warm fermentations, and by the use of the general hot bath. After several days use of the enemata, which were each as much as a quart, or more, he began to pass large quantities of a white inodourous substance, a portion of which I will presently exhibit to the Academy. When in the moist state, it much resembled chalk or magnesia; but upon examining it chemically, I could detect no mineral substance. Upon the suggestion of a medical friend, I tested for starch, and became satisfied that the substance in question consisted almost entirely of that principle. After procuring these discharges, the patient's stomach became gradually more tolerant of medicine, healthy fœcal discharges were procured, and he was relieved from all distress. Some persons, in gratification of a morbid appetite have the habit of eating large quantities of raw starch, but he denies having ever done so. The presumption therefore is, that this accumulation in the bowels arose from the imperfect digestion of the starch contained in the ordinary farinaceous food of the patient, and the question arises, (which I think is the chief point of interest,) how far the character of the case would justify us in diagnosing disease of the pancreas. The generally received opinion of the organ is, that at least one of its functions is to coöperate with the salivary glands in rendering starch soluble, converting it into dextrine and grape sugar. It would be quite an advance in our knowledge, if we could discover any diagnostic symptom of disease of the pancreas.

I forgot to state that the patient informed me, that he suffered, thirteen years since, an alarming and protracted attack of vomiting, with obstinate constipation. I think it very remarkable that this collection of starch should be found so entirely separate from ordinary fœcal matter, as to be untinged in colour and entirely devoid of odour.

[This substance has been analyzed by Prof. J. C. Dalton, of New

York, and is found to consist of raw corn starch. As the patient, not infrequently, used corn bread, as a portion of his diet, it is fair to assume, that such bread may at times have been insufficiently cooked, and thus resisting the action of the intestinal juice, have been ejected, in the condition represented.

There is an important lesson to be derived from this phenomenon—that the dejection of starch is no evidence of impaired powers of digestion, or of inertia in the pancreas, the follicles of Lieberkühn, or the glands of Brunner. Had there been impaired digestion and absorption in this patient, albuminose would have been present in the dejected starch, and there would have been, consequently, a failure to obtain the characteristic blue iodide of fecula, when this starch was tested with iodine water—it being one of the characteristic effects of albuminose, suspended in animal fluids, to prevent the reäction, between starch and an aqueous solution of iodine.—ED.]

ART. III.—DIPHTHERIA—ITS HISTORY, PATHOLOGY, NATURE, AND TREATMENT. An Essay which received the first Prize of the Medical Association of the State of Georgia, June, 1866. By E. S. GAILLARD, M. D., Richmond, Va.

[CONTINUED.]

Anatomical and physiological relations. The membranous exudation of diphtheria varies much in colour and thickness. It is white, at times, and again opaque; ash-coloured, grey, buff, brown and sometimes black. It presents a great variety of texture; soft occasionally, and sometimes, like isinglass softened in water: it is generally, however, membranous, tough, dense and slightly elastic. In rare instances, it is dry and easily broken. Sometimes, it has the appearance of wash letter, or buckskin, saturated with water. Dr. Francis Minot, in giving a history of the sickness and death of the late and lamented Dr. H. W. Adams, of Boston, says, in regard to a portion of the uvula that was amputated, "it resembled a piece of umbilical cord, more than anything else." The exudation varies, from the fraction of a line, to two lines in thickness; it has been seen, of three lines in thickness. Dr. Sanderson, who has paid great attention to this branch of the subject, states that the exudation of diphtheria is deposited in layers and that these layers can be separated. In lifting this membrane, from the mucous surfaces, it frequently appears attached by small filaments, which extend into the mucous follicles. Most generally, no ulceration takes place and when the membrane is raised up, though the mucous surface is tumefied, injected and inflamed, it will be found, as a rule, that the texture of the mucous tissue is uninjured; occasionally and in rare instances, ulceration has taken place, and when this exudation-pellicle is removed, an unbroken, but red and shining basement membrane is revealed. It is stated, that when this pellicle is not removed artificially, that ulceration more frequently occurs. But in our experience the opposite is far more often true—tearing away this exudation, forcibly, is well calculated to hasten, or cause ulceration. Sometimes, instead of a red and shining basement membrane being exposed, on raising the diphtheritic pellicle, the mucous surface appears of a dull, red colour, dotted here and there with black and ecchymosed spots.

These membranes appear to be formed, by a coägulation of the plastic portion of the blood. Dr. Alonzo Clark considers its texture to be "a fibrillation of fibrine;" with no cells, but containing "a variable quantity of granules." Dr. Sanderson has mentioned cases, where the exudation was non-fibrinous; "a granular and amorphous deposit;" these he considered mild cases.

In the very mildest cases, we have a depraved and altered mucous secretion; this occurs, in the initial stage of a large proportion of the cases of diphtheria. Succeeding this, we have a coägulable exudation which never manifests any tendency to organization. Sanderson states, that the fact of non-development, in this exudation, is characteristic of diphtheria. It would seem from "the state of dissolution of the blood" in diphtheria, that the fibrin of the blood had been destroyed, and that the exudation, in this disease, could not (reasoning a posteriori) be fibrinous. Such a view has often occurred to us and we have bestowed much care in the investigation of this anomaly—this chemico-physiological paradox. There can however, we think, be given a rational explanation of it. What is the cause of the fluidity of the blood whilst in circulation, or rather why, it does not coägulate, is not yet clearly explained. Dr. Richardson's ammonia theory has been, we think, by Dr. Dalton and others, proved insufficient to account for it. This is not the place to refer to such a subject. We know, however, that to fibrine is the phenomenon of coägulation invariably ascribed, and when we find that in diphtheria the blood seems to lose this property, it appears strange, at least, that the exudation, poured out, should consist of fibrin. Yet such is the case; the blood is usually "in a state of dissolution" and the exudation is nevertheless fibrinous. Careful observation will explain this apparent contradiction, and convince us of the truth of a most happy aphorism—"il est toujours téméraire d'attaquer des experiences, par des raisonnemens." We know, that there are many methods (chemical and others) for keeping the blood liquid, when out of the body, and yet, when this is done, the fibrin nevertheless exists in it, unimpaired. We know, that there are many substances, in chemistry, which exist frequently in an allotropic state; where their properties having been changed, their constitution yet remains unaltered. Lehman, Liebig, Faraday and other authorities give repeated instances of this. It is quite rational to suppose, that certain changes may take place in the constituents of the blood and that an abnormal fluidity might be the result of this,[*] whilst a portion of exuded plasma, removed from the operation of such causes, would manifest all the properties, naturally belonging to it.[†]

It is also very rational to conceive, that the blood, in diphtheria, may exhibit this condition of "dissolution" chiefly, if not solely, because of a loss of its proper proportion of fibrin—a proportion sufficient to produce coägulation. It is evident, that if blood be deprived by morbid, chemical, or physical causes of a certain amount of fibrin, it must (although it may yet contain fibrin) have lost its property of coägulation. So in diphtheria, the blood may have had a sufficient quantity of its fibrin destroyed, or changed to lose its property of coägulation, and yet

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Dr. Sanderson, of London, considers that the diphtheritic membrane does not develop, does not organise, "on account of a morbid modification of the fibrin;" this may be the chief reason for absence of coagulation in the blood of diphtheria.

[†] This is the explanation, sent in an autograph letter, by Dr. Henry Hartshorne, of Philadelphia, Pa.

contain far more than enough of fibrin, to compose and constitute the membranous exudation of this disease. Whether this explanation, that we specially offer, be sufficient or not, to explain the conditions stated, we know that this exudation is chiefly, and almost invariably composed of fibrin.

This exudation always exhibits its characteristic peculiarity of non-organization and non-development. The coägulation is not due to the action of vital force, or local causes, for M. Empis states, that "at the end of a few hours after tracheotomy, whatever care is taken to clear the canula, the instrument is seen to be lined, with a layer of whitish concretions; the thickness of which continually increases. These concretions are evidently, only the result of the coägulation of the liquids, with which the sides of the canula were in constant contact."

When this exudation first appears, sometimes it consists only of altered and depraved mucus; if the case does not then improve, the exudation becomes muco-serous; then sero-fibrinous, and after this entirely fibrinous. The coägulation of this fibrin, as it is exuded, builds up the diphtheritic membrane; if it is daily removed, the membrane is thin and easily broken; if not removed, it becomes thick, dense and coriaceous. This will, in a great measure, explain the discrepancies seeming to exist in the accounts of the various autopsies. In some, the membrane is thin and soft; in others thick and tough, etc. Portions of it become detached, and it sometimes thus presents a rough and ragged surface. Not organized, it soon begins to decompose, and we have the constant fœtor of breath, characterizing this disease. When the membrane is artificially removed, it reveals apparently a concave, or ulcerated surface. On close inspection, it will often be found that there is no ulceration; the tonsils in parting with the exuded fluid shrink in bulk; the fluid coägulates, and in this process, exerts a considerable pressure on the surface beneath; this pressure soon produces a whitish concavity, and this concavity has the appearance of an ulceration; on removing the exudation, the basement membrane is frequently exposed, and we have a shining and smooth-surfaced concavity.

Generally, the diphtheritic pellicle is seen only about the fauces; most frequently, on the tonsils only; but sometimes, it spreads over the entire extent of the buccal surface. Dr. McDonald, of England reports cases, where "the appearance, on opening the mouth, is as though it were lined with plaster of Paris." The exudation extends downwards sometimes, as far as the minute ramifications of the bronchiæ. It is not uncommon for strips of exudation membrane to be cast off—sometimes small casts of the bronchiæ are coughed up. Dr. D. J. Cain, of Charleston, South Carolina, in an autograph letter, writes: "I took a small strip of membrane, from a lady who died recently, upwards of three inches long and one inch and a quarter wide. A larynx and trachea, completely closed and solidified, were exhibited a few days ago, at a meeting of our Medical Society." It will thus be seen, that the diphtheritic pellicle, varies much in extent; from a simple spot on the tonsils, to a condition involving the buccal cavity; and, where it extends downwards, invading the entire larynx, trachea, and the minutest ramifications of the bronchiæ The rings of the trachea are seen distinctly impressed, on the membranous pieces discharged. At times, the membrane resembles a piece of old parchment, saturated with water. Its leading characteristic, is a disposition to extend, and also to constantly reform. We pass now to consider its microscopic appearances.

The microscopic characteristics of the exudation of diphtheria, have been closely studied and investigated. Brettonneau, Trousseau, Empis, in France; Wade, Wilks, Sanderson, Greenhow, in England; Rokitansky and Virchow, in Germany; Laycock, of Scotland; Clark, Hartshorne, Condie, Jacobi, in America; Rogers, Vogel, and many others, have laboured zealously in this field. The result is chiefly, that the membrane is "a fibrillation of fibrin," containing, in its net-work, granules, molecular particles, epithelial cells, exudation corpuscles and sometimes blood and pyoid cells. There are no formative cells. The fibrils of fibrin form a net-work, a matrix, in which the other component parts of the membrane rest. Mr. Simon, in a paper presented to the Pathological Society of London, states, in regard to the microscopic appearance of the diphtheritic membrane, that "when seen in thickness, it presented a pebbly character, like that afforded by an accumulation of nuclei; but the fallacious nature of this appearance was recognised, on looking at the thin edge of a section, or by adding acetic acid, which rendered the whole transparent, at the same time expanding it, and bringing into view an exceedingly delicate and irregular network, of well and sharply defined, occasionally bulging, fibres, which appeared to be, so to speak, the skeleton of the original network. In some places, the false membrane consisted of an apparently uniform layer, composed of an extremely fine and indistinctly fibrillated tissue, studded with molecular matter, and presenting something of a ground glass character. Imperfect epithelium was entangled here and there, in the substance of the membrane, but was most abundant on the superficial surface. These microscopic appearances and characteristics, have since been fully examined, but, beyond what has been stated, there is nothing of special interest, or importance known. Dr. Harley has made many microscopic examinations of the dipththeritic membrane, and thinks there is nothing fibrinous in regard to it; in twelve cases he found nothing of the kind, "but simply mucus, epithelium and mucus cells." The explanation of this apparent contradiction is very simple; the specimens examined, by him, were either from mild cases, or obtained during the initial stage of other cases. Dr. Laycock, of Edinburgh, in a lecture published, May 29th, 1858, regarded the membrane due to a fungous growth, the öidium albicans, as frequently exhibited in ordinary thrush. He considers the membrane due "to the action of the parasite on the enfeebled mucous membrane." This view, which at the time attracted much attention, is now entirely abandoned. Dr. W. R. Rogers, in fourteen cases, found the parasite absent in all but one. This was read before the London Medical Society. It is of course unnecessary to say any thing, in reference to the competency of Dr. Rogers as a microscopist. In twelve cases, Dr. Harley found this parasite present only in one, and then the fungus did not grow upon it, until fifty-six hours after its removal. He considers the presence of all fungi, in these cases, due to accidental circumstances. They occur on the teeth and tongue of the most cleanly persons and it is not singular, that they should, at times, be found on the diphtheritic membrane. According to Berg and Gübler, (as stated by Dr. Thayer) "this fungus may be developed on any acid, thickened mucus of the mouth and throat, as is seen in many chronic diseases." Warner, Robin, Leidy and others, have reported instances of vegetable, or parasitic growths on the diphtheritic membrane. Leidy considers these fungi, identical with those of the yeast plant. The membrane of diphtheria, Dr. Wade, of Bermingham, considers due to the presence of the leptothrix buccalis, frequently seen in the saliva. These fungi and algæ have, however, ceased to attract attention, for their presence is known to be entirely accidental. Dr. Harley states that these algæ frequently prove to be "crystals of fatty acids." Dr. Alonzo Clark, of New York, has apparently made the same observation; he says "these granules, under the microscope, appear to be fatty." Dr. Wilks states, that he examined sputa from the mouths of persons, suffering with various diseases, and found the fungous growths, when present, not differing from those seen in diphtheria. The practical fact, in regard to the subject, is, that these growths are all accidental, and have nothing, whatever, specifically to do with this disease.

Brettonneau, Sanderson and others have imitated in a measure, the exudation of diphtheria, by injecting an oleaginous preparation of cantharides, into the throat and fauces of the lower animals. "The concretion possesses a structure which is identical with that of the early conditions of diphtheria; consisting of a fibrinous matrix, in some parts of which cells are imbedded." The chief, yet interesting, difference between the diphtheritic exudation and that artificially formed is, that in the last, there is a distinct tendency to development and organization, whilst in the first there is nothing whatever of this kind. This as a pathological fact is of much importance; it shows, that in diphtheria, the blood has undergone a marked and decided change. It forms a strong link in the chain of argument used in this essay to prove, that diphtheria is a blood disease. We see thus, that the diphtheritic membrane is not only fibrinous, but that it possesses the peculiar and specific characteristic of non-development; that it does not organize; that it varies in thickness, extent, colour, density, elasticity and tenacity, but that, wherever found, it is peculiar, and serves in a great measure to characterise this disease.

Diagnosis.—This to the Physician is, next to treatment perhaps, the most interesting if not the most important, branch of the subject. With him, must ever be prominent before the mind the Latin injunction, "prius cognoscere, dein sanare."

The diagnosis of diphtheria ought not to be very difficult, after a careful study of its pathology. We have almost invariably the diphtheritic membrane as a guide, with its characteristic disposition to extend, and, in a few days, to cause the marked and peculiar fœtor of the breath; its invariable tendency to reform, after removal; the facility, as a rule, of its removal, and the peculiar appearance of the tissue beneath—swollen, injected, shining, or covered with ecchymosed spots—concave and red; the fœtid discharge from the nostrils; its constancy, quantity and irritating effects on the parts subjected to its contact; the almost universal swelling of the lymphatic glands behind the jaw; the unusual prostration attending or resulting from such a slight and brief attack of fever; the frequent appearance of albuminuria, in the early stages of the disease; the infrequent, weak and compressible pulse. These will, when taken together, enable one, without much difficulty, to pronounce upon the character of the disease. As it is absolutely important, to determine very early the existence of diphtheria, we will introduce a differential diagnosis—serving to certainly distinguish it from the diseases with which it may be confounded.

It will be distinguished from pharyngitis, by the presence of the membrane, and its disposition to extend and reform; by the slight and brief character of the fever; by the early and unusual prostration; by the swelling of the lymphatic glands; by the little inconvenience and pain caused by deglutition; by the occasional supervention of laryngitis; by the disease not being, in severity, proportional to the lesions of the fauces; and lastly, from its epidemic prevalence, and the constant fœtor of breath.

From muguet, we distinguish it, by its commencement in the fauces and not on the buccal surface; by the exudation being membranous, and not curdy or flocculent; by great prostration, early manifested; by the disposition of the membrane to reform after being entirely absent, for a time; by the great fœtor of breath; by the swelling of the lymphatic glands; by the little pain in the act of deglutition; by the presence, at times, of laryngitis; by the severity of the disease not being in proportion to the lesions observed; by its frequent epidemic prevalence.

From aphthous inflammation of the mouth, it is distinguished by the exudation being membranous, pellicular and non-ulcerative, instead of being follicular and ulcerative; by its disposition to reform; by the fœtor of breath it occasions; the facility of its removal; the swelling of the lymphatic glands behind the jaw; the fœtid discharge from the nostrils; the strange prostration; the act of deglutition not being painful, but being physically obstructed; the occasional appearance of albuminuria; presence of fever; supervention of laryngitis; the weak and compressible pulse.

From erysipelas, by the presence of a membranous, extending, reforming, pellicular, non-ulcerative exudation; instead of a follicular exudation, attended with ulceration; the great facility of removing this exudation and the non-ulcerated appearance of tissues underneath; the fœtor of breath being greater; usual absence of cutaneous eruption and when present, not having an elevated margin, and not causing tumefaction; fever being usually milder—no cerebral or typhoid symptoms manifested; laryngitis supervening; great prostration succeeding a short attack of fever.

From the croup, by the fauces, and not the trachea being affected; by the constitutional symptoms preceding the local; commencing above the rima glottidis invariably; exudation being always seen; fœtor of breath and discharge from the nostrils being manifested; usual freedom from dyspnœa; occasional presence of cutaneous eruption; swelling of the lymphatic glands behind the jaw; dyspnœa not increased by deglutition; not invading, as a rule, at night; not directly the result of exposure to cold and dampness; cough soft and moist, if present, and not being harsh and metallic in sound; albuminuria often present.

From scarlet fever, by less heat, and this subsiding quickly; early prostration; cutaneous eruption, if present, of a uniform, erythematous redness, appearing in patches and non-punctuated in character; tongue not red, shining or having a strawberry appearance; supervention of laryngitis; the appearance of hæmorrhage, from the mucous surfaces; discharge from the nose appearing early in the disease; albuminuria also soon manifested ; no ulceration, or sloughing of the mucous tissues; absence of all cerebral and typhoid symptoms.

With these differences carefully recollected, it will not be difficult to form a correct diagnosis of diphtheria.

Symptoms.—It is both useless and impossible to give the rare and anomalous symptoms that have been, and are developed, during an attack of diphtheria. What is chiefly required is, that there shall be presented a clear and well defined type of the disease; the variations from this, though constantly occurring, are being sufficiently great, in any one case, to render the general description obscure, or inaccurate. The division of the disease, into a number of forms, has been adopted by a great many writers, but there will be no difficulty in referring all cases, to either one, or the other of two forms of diphtheria. We have descriptions of the mild, the simple, the ordinary, the croupal, the ulcerative, the malignant forms of the disease. This is confusing to the Student and even to the Practitioner, and it is neither necessary nor important. We will speak of diphtheria, as manifested in two forms: the non-malignant exhibition of the disease, and its opposite, the malignant.

An attack of diphtheria, almost invariably appears insidiously; it never invades suddenly. There is usually diminished appetite, and this soon gives place to an anorexia, that is persistent and embarrassing throughout the disease. There is langour, of more than the ordinary kind manifested, in cases of equal constitutional disturbance; foreshadowing the nervous prostration and muscular debility, characterising this disease. This langour is both mental and physical. Usually headache is soon a source of complaint; then most commonly a chill, followed by fever, makes its appearance. If the patient be now examined, the tongue will be found but little changed; coated, perhaps slightly, with a white, or yellow fur. The fauces will appear injected ; sometimes of a red, most commonly of a purplish colour, soon after this there appears on the tonsils, (which with the fauces are now swollen,) an ash-coloured spot, or exudation. There is some stiffness of the muscles of the neck, with more or less swelling of lymphatic glands, behind the jaw.

Very generally a slight discharge from the nostrils and an increased secretion from the salivary glands. With these symptoms, there is some dysphagia, with obstructed though not painful deglutition.

If ordinary care and prudence be observed, these symptoms will decline and disappear in from four to ten days, and convalescence, at this time, be fairly commenced. This is a fair example of a mild case of diphtheria, uncomplicated with any other disease. The fever will most commonly disappear, in twenty-four or forty-eight hours; never having been high or troublesome. The pulse rarely exceeds one hundred beats, in the minute.

The diphtheritic pellicle will either disappear gradually, becoming each day more thin, or it will exfoliate and be discharged in pieces. This is of course the mildest manifestation of the disease. Sometimes, there is no anorexia; no constipation; the digestion being unimpaired. The prostration may amount only to langour, or apparent indolence. Headache may be absent. There may be scarcely any fever and this preceeded only by an unpleasant feeling of chilliness. The swelling of the fauces may be slight; the colour of the fauces but little altered; the pellicle may not cover even the tonsils, but amount to nothing more than a few spots upon the tonsils, the pillars, and the uvula. There may be only a slight enlargement of the lymphatic glands; the muscles of the neck, not unpleasantly affected; no dysphagia, and deglutition almost unimpaired; no discharge from the nose; and the patient not even confined to bed. With the disease diagnosticated however, the Physician should be none the less watchful, for even such cases become suddenly grave and dangerous, and are often followed by the most serious consequences. These symptoms may all be aggravated, and yet the disease cannot be called malignant. We may thus have great languor; much anorexia; chill with fever, though in the most cases this is strangely brief and mild; tongue covered with white, or yellow fur; the fauces injected, tumefied and of a claret colour; tonsils and the uvula covered with a whitish, greyish, or yellowish exudation; great fœtor of the breath; fœtid and corroding discharge from the nostrils; nostrils plugged with a depraved mucous secretion and with the swollen tonsils and uvula causing a mechanical dyspnœa, well calculated to suggest laryngeal, or bronchial trouble; the lymphatic glands much enlarged and the muscles of the neck stiff and painful; dysphagia and impaired deglutition manifested; albuminuria present; and the patient's condition, generally, painful and dangerous. The profuse secretion of saliva and depraved mucus, with the swollen fauces, and elongated uvula, making sleep, or even rest, impracticable.

These instances, with the intermediate degrees of severity in each or all of the symptoms, can be referred to the first or non-malignant form of the disease.

The malignant form of diphtheria, is so terribly defined in its course, that there can be no error in the classification of the cases. In the malignant form, we have all of these symptoms aggravated, with other symptoms, that are happily peculiar to this exhibition of the disease. There is, at first, great headache; prostration; total anorexia; well defined chill, with low, but prostrating fever; tongue loaded with fur; throat enormously swollen; fauces dark-coloured; a yellowish or brownish, coriaceous exudation on the tonsils, pillars and uvula, and sometimes over the whole surface of the fauces; vomiting and diarrhœa; profuse secretion of saliva and an abundant discharge of depraved mucus; nostrils discharging a thin, corroding and exceedingly offensive liquid; tumefied tonsils and uvula, with the plugged nostrils, causing great dyspnœa; salivary and mucous secretions, rendering the recumbent position impossible; hæmorrhage from the nose, mouth and sometimes from the bowels; fœtor of the breath and the discharge from the nostrils affecting the entire chamber; weak, rapid pulse; complains of heat, with the body cool; lividity, thirst, and the ordinary symptoms that precede death. This form of the disease is happily rare. We have malignant cases, in which these symptoms are not all present, or where they are much milder. The excessive headache; the weak, frequent pulse, with no heat of surface; diarrhœa and hæmorrhage; yellow or dark, leathery exudation on the fauces; engorgement of the salivary glands; excessive fœtor of the breath serve always to make this form of the disease easily recognised.

With these two forms of the disease as given, and the intermediate examples belonging to each form, we have a fair conception of the symptoms of diphtheria. As laryngitis and tracheitis are absent in a large number of cases of diphtheria, (chiefly in those which recover) we have not introduced the symptoms, peculiar to these diseases, in the symptoms of diphtheria. Being totally different in pathology, we can not see the propriety of introducing the symptoms of these diseases, with the symptoms of diphtheria; it would certainly be as appropriate to introduce the symptoms of bronchitis, or pneumonia, or of any of those diseases which form the complications of diphtheria, or which prevail, so as to be blended with this disease. We can as well speak of bronchial, pneumonous, scarlatinous diphtheria, as we can of croupous diphtheria. These diseases are all complications of diphtheria. We will not enter more minutely into the description of symptoms, when croup supervenes in diphtheria, than to say, that we have added to the existing symptoms of diphtheria at this time, the symptoms belonging to croup. We have, in the same way, when other diseases supervene, the symptoms which are peculiar to them. It must not be taken for granted, when dyspnœa is manifested, that croup has made its appearance. The nostrils occluded with their depraved secretion, and the swelling of the tonsils and uvula produce a mechanical obstruction which renders breathing difficult, when the larynx and trachea are uninjured. When the nostrils are not thus closed and the tonsils are not much swollen, we have also impaired respiration from bronchial, or pneumonic trouble. If, by auscultation, we have evidence that this kind of trouble does not exist, and if, by ocular inspection, we find that the nostrils and tonsils are not in the condition represented, there is then every reason to believe, that this symptom (taken with others, belonging to the disease) is due to the invasion of croup. With this dyspnœa, we have the metallic, sonorous cough; voice much altered; restlessness, etc., which lead at once to a suspicion of the existence of croup.

The existence of the membrane upon the tonsils has been generally considered as one of the pathognomic signs of diphtheria. It is usually so, but we have cases of diphtheria, where the throat presents no such appearance. With the other symptoms of diphtheria existing, the throat is found very little altered, (sometimes not in any respect,) and the diphtheritic exudation is manifested elsewhere. It has been found thus on the body, wherever the surface has been denuded; on the eyes; in the ears; in the vagina; on the anus; in the nasal fossæ; on the vulva, including the orifice of the meatus urinarius; and has recently been found in the intestines. Dr. R. H. Goldsmith, of Mississippi, writes thus of this disease, in regard to its membranous exudation: "Diphtheria has been endemic in this vicinity (Oakland College) for three years and epidemic since January, 1860. It has varied in severity, from the slightest disposition of exudatory membrane, to the complete plugging of the larynx and trachea. I may add, with the deposition of the diphtherial membrane from the fauces to the anus." Dr. Goldsmith states that he has treated 300 cases, and on one plantation, saw 120 cases. If he is correct, in regarding what he saw, in the intestinal tract, as diphtheritic membrane, M. Empis is wrong in his assumption, that this membrane is not formed on surfaces "removed from the contact of the air." As the disease, even when the larynx is covered with this exudation, has not extended to the œsophagus, it should require careful and repeated examinations, before assuming that it does invade surfaces, not in contact with the atmosphere. Dr. Greenhow states, that Dr. Gull has been led to suspect the invasion of the œsophagus by diphtheria, but there is no positive proof, that the membrane of this disease has ever been found on surfaces, not exposed to the air. Dr. Goldsmith has reported the first instance of this kind in America on record.* It has been claimed, that as cantharides will produce a membrane, in many respects similar to that of diphtheria, that the membrane formed on blistered surfaces, is due to the action of the cantharides and is not the result of the disease. This may be true, but there are repeated instances of the formation of this membrane on wounds, when the disease was prevalent. Dr. Greenhow reports a case of the formation of this membrane on the chest of a child; the skin of the chest had been excoriated by the acrid discharges from the mouth—the case is reported by him, on the authority of Dr. Sanderson.

The fever, in diphtheria, is usually mild and brief; the pulse rarely exceeding one hundred beats per minute. In a Spanish epidemic, cases occured where there was no fever. It usually terminates in twenty-four or thirty-six hours. The pulse is sometimes abnormally slow. Dr. Heslop, of England, found it only forty, in a child of five years of age. Dr. Kneeland, of New York, reports a case, where the pulse was sixty-five, in a boy ten years of age. Dr. Huxham, of Plymouth, England, states that the discharge from the nostrils was so acrid, in cases under his observation, that "it corroded the lips, cheeks and hands of the children that laboured under the disease and the fingers and arms of the nurses that attended them."

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* M. Guersent has reported a few such cases.

Dr. L. N. Beardsley, of Milford, Connecticut, states that "the first symptom of this disease, (and it is one which we have never seen referred to by any writer on the subject,) was pain in the ear. It was not only pathognomic, but prominent and almost invariably present, in every case that came under our observation, for a day or two before the patient made the least complaint in any other respect, and before the smallest point, or concretion of lymphatic exudation could be discoverered, on the tonsils or elsewhere." Among other anomalous symptoms, Dr. Thomas Ryerson, of Newton, New Jersey, mentions an ulceration of the toes. "In one of these epidemics of diphtheritis, many of the patients were affected with an extremely fœtid ulceration of the toes, which could not be traced to any want of cleanliness." When there is any cutaneous eruption, coïncident with diphtheria, it appears in patches and is not diffused over the surface, as in scarlatina. It is of a uniform erythematous redness and has not "the boiled lobster" appearance of scarlatina, and, unlike the scarlatinous eruption, it is not punctuated.

When the larynx escapes, the most careful and scientific observers are deceived. Children considered safe are, on the next visit found dead. When the larynx however does not escape, almost every case is fatal.

When the fever has passed off, the chief feature is prostration; not the prostration of typhoid disease, but something peculiar to diphtheria. There is no delirium; no wandering; no empty, fatuous look, that speaks of a disordered brain; no coma; none of the idle comments, that foretell the ending of mortality. The patient is calm and quiet. Judging from the symptoms manifested, he might be considered convalescent. He is cheerful, perhaps, and hopeful, but be not deceived, it is all

> "The sick man's lightning, half an hour ere death—
> When faintness, the last mortal birth of pain,
> And apathy of limb, the dull beginning
> Of the cold staggering race which Death is winning,
> Steal vein by vein and pulse by pulse away;
> Yet so relieving the o'er tortured clay,
> To him appears the renewal of his breath,
> And freedom, the mere numbness of his chain—
> And then he talks of life, and how again
> He feels his spirits soaring, albeit weak,
> And of the fresher air which he would seek;
> And as he whispers, knows not that he gasps,
> That his thin finger feels not what it clasps—
> And so the film comes o'er him; and the dizzy
> Chamber swims round and round; and shadows busy,
> At which he vainly catches, flit and gleam,
> Till the last rattle chokes the strangled scream,
> And all is ice and blackness."—ODE TO VENICE.

This is no fancy sketch, and will seem strangely familiar to those who have witnessed such scenes. The death of the lamented Dr. Adams, of Boston, as described by Dr. Minot, of that City, would be briefly depicted by these lines.

As croup sometimes complicates diphtheria, and we have the symptoms and termination of croup superinduced, so we have thus other diseases, with their peculiarities and history. Tonsillitis sometimes supervenes, and after much of its peculiar suffering, we have the formation and breaking of the abscess. Ulceration is occasionally manifested; if scarlet fever is prevailing coïncidently, we have the throat symptoms of that disease manifested as a complication, or as the result of epidemic influences; and the throat at times suffers as it does in that disease. The peculiarities of any prevailing epidemic, being impressed upon coïncident diseases, is a phenomenon universally known and recognised. A prevailing epidemic, of any kind, will manifest its symptoms, as a part of the symptoms of coëxisting diseases. When we have occasional ulceration of the throat manifested in diphtheria, during the coïncident prevalence of scarlet fever, there is as much error in considering this ulceration as peculiar to diphtheria, as there would be in pronouncing the cutaneous eruption, of an intercurrent attack of measles, as a feature of this disease. If measles are prevailing, it is not uncommon to see the peculiarities belonging to it, impressed upon cases of diphtheria; but no one will, for a moment, confound the two diseases. Dr. Alonzo Clark, of New York, saw in the same child, and during the same illness, diphtheria, measles, scarlet fever and again diphtheria—the child dying of diphtheria; yet he found no difficulty, in diagnosticating these diseases. One less careful, might have pronounced it simply a rare and marvellous case of diphtheria. It will thus be seen, that we may have, during an attack of diphtheria, complications of croup, bronchitis, pneumonia, scarlet fever, etc., but that care will enable us always to recognize the supervention of these diseases, and a want of care, or proper knowledge, may lead us to confound the symptoms of these diseases, with the symptoms of diphtheria. Again, we have from the coïncident occurrence of other epidemics, one or more of the symptoms of these epidemics coëxisting with the symptoms of diphtheria, yet a careful observation will easily preserve us from error and confusion. The symptoms of croup, tonsillitis, scarlet fever, bronchitis, pneumonia, etc., have nothing whatever to do with the symptoms proper of diphtheria; as well may we classify, with the symptoms of diphtheria, those of rubeola, varicella, or variola; for these last diseases, as well as the first, have complicated cases of diphtheria.

Albuminuria is often present during an attack of diphtheria, but we cannot of course, regard it as one of the symptoms of this disease. Dr. Wade, of Birmingham, was the first to observe its presence in diphtheria. It has been carefully watched and studied, in connection with this disease. The results of these observations may thus be stated: It is always a grave and serious circumstance in the history of the case, and most serious, if the quantity present be large. It usually occurs in the early stages of the disease. Its presence, even in large quantity, however, is not necessarily a fatal symptom. It is present in cases that recover, and is frequently absent in cases that terminate fatally. It is found in the urine, even, of mild cases. It does not give to the urine the smoky appearance, caused by the presence of albumen in scarlet fever. When present, casts of the urinary tubes are revealed, on microscopic examination.

Phosphates precede and succeed the occurrence of albuminuria, as a rule; when the urine is heated, a cloud is produced, which disappears on the addition of nitric acid; this cloud is produced by the presence of the different phosphates; in a few days, the cloud produced by heat will be increased, under the addition of nitric acid; this is due to the presence of albumen. Uræmia does not coëxist with albuminuria, in diphtheria. With the exception of albuminuria, the urine is not specially affected. Sometimes there is an excess of phosphates, and again an excess of lithates, but there is nothing of special interest or importance in this connection. The specific gravity of the urine, in diphtheria, is almost always above the natural standard. Heslop, Sanderson, Hart, Houghton, Greenhow, Bristowe, Webb, Clark, Jacobi, Isaacs, Krakotwitzer and others have paid special attention to the urine in diphtheria and much of what is received, as of true pathological importance in albuminuria, is based on their observations.

Ulceration, though most commonly due to the complication or epidemic prevalence of scarlet fever with diphtheria, is occasionally manifested independently of these causes. It is a symptom very seldom occurring and rarely recorded, during the local or general history of this disease.

It sometimes happens, that the premonitory symptoms of diphtheria are very slight and the malaise scarcely perceptible, in the gravest cases. Sometimes great local and constitutional changes occur, with so little suffering, that when at last, the patient complains, the case is found in a hopeless condition. Malaise of the patient is not proportional, with the severity of the disease. Children have died, whilst sitting up, or dressing, when the parents were not conscious of any real illness; and "the ploughman has been unable to complete his furrow." * The diphtheritic exudation is not in proportion to the gravity of the case; sometimes the uvula, as mentioned by Dr. Comegys, of Cincinnati, appears "like a pearl ear-drop," so complete is the covering; sometimes the mouth appears "as though filled with plaster of Paris;" yet these cases

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* Reported by Dr. F. S. Coskery, of Baltimore, Md.

may not be grave in character. Again, this symptom may be slight and yet the patient irretrievably sink, under the prostrating effects of blood-poisoning.

The degrees of fever, swelling of the lymphatic glands, discharge from the nose, fœtor of breath, dysphagia, membranous exudation, anorexia, etc., vary with the cases, the localities, the epidemics and the ages ; it will be unnecessary to give cases in illustration of this truth, and we will find, that, in diphtheria, as in all other diseases, though we may have a type clearly defined, there will be an interminable and indescribable variation in the symptoms. We have given fair types and, though cases will, in comparison, vary much, there will be no difficulty, from the symptoms described, in recognising the disease.

Etiology.—Like that of all zymotic diseases, the etiology of diphtheria is obscure and not in the least understood. Whatever effect hygienic influences may have upon its course, they certainly seem to exert little or none on its cause. The meteorological attributes of Winter seem to have some little influence; yet it would be more correct to say, that diphtheria coïncides, in its prevalence, with the existence of these causes; for we are unable to trace any direct relation, between the atmospheric conditions of Winter and the resulting invasions of diphtheria. Cold, moisture, dampness, snow, do not seem to bear any direct relation to the origination of the disease. In the descriptive language of Mr. Hart, of England, "it visited the open hamlets of rural districts and the crowded courts of the great Cities. It reached the seaside, and fell with violence upon the infant population of Boulogne. It raged, alike, under the intense heat of Summer, and during the cold Winter months. Its ravages affected, equally, the inhabitants of marshy, ill-drained land and those of dry and elevated situations. Brighton has not escaped; Scarborough has suffered. It has swept across the marshy lowlands of Essex, and the bleak moors of Yorkshire. It has traversed the flowery lanes of Devon, and the wild flats of Cornwall, that are swept by the sea breeze. It has seated itself upon the banks of the Thames, scaled the romantic heights of North Wales, and has descended into the Cornish mines. Commencing in the Spring months, it has continued through the Summer, and if extremes of temperature have seemed to lend it new vigour, and the heat of the dog days, or the severe frosts of Winter have fostered its strength, yet, moderate temperature has not greatly abated its influence, and it has struck a blow here and a blow there at all seasons."

It was observed, that in France, or England, it did not obey any known climatic law. Brettonneau writes in regard to the course of diphtheria in France: "It did not appear possible to ascribe its appearances to any climatic or meteorological law. Historical documents show, that while it raged with terrible violence amongst the towns and hamlets of the Loiret, remarkable for their salubrity, and the advantages of their geographical position, it passed over the villages of Sologne, seated amid the marshes; while elsewhere it seemed to select marshy and ill-drained districts, and to spare those which were in a better sanitary condition. In the year 1825, remarkable for its dryness, it laid waste the communes North of Orleans, and in 1828, remarkable for its dampness, it desolated the country South of Orleans." This total independence of all hygienic influences, in diphtheria, seems peculiar to this disease. Dr. Thos. H. Peacock, in an autograph letter of December, 1860, thus writes: "the cases referred to, occurred in members of a high family, living in an elevated and well drained locality, reputed most generally healthy; in a house of unexceptionable character, with large and lofty rooms. I am not aware of any atmospheric condition which seems especially to influence the prevalence of this disease." Many observers in France, England and America, have supposed that malarial influences excited some effect on the disease, but these views have all been abandoned, as untenable. Dr. Hatch, of California, writes that barometical, meteorologic and hygienic causes do not seem to affect the course of the disease. This is also the testimony of Fourgeaud, Blake and Wooster, of that State. Whilst prevailing at all times, and at all seasons, in America, it has seemed to spread more generally during the Winter and early Spring months. Sudden alterations of temperature seem to act as exciting, if not as predisposing causes; so on the contrary, preceding attacks of the exanthemata, or their epidemic prevalence, at the time appear to act as predisposing, if not as exciting causes.

As diphtheria is very generally prevalent, when malaria has been destroyed by cold, and as it has prevailed with deadly malignity where malaria is unknown, it is irrational to claim any connection between them. The Lancet Sanitary Commission thus sums up, on this subject—"it appeared to be equally independent of all atmospheric conditions—was a theory formed, that its intensity depended upon the solar influence, and that the heat of Summer lent fresh force to its destructive attacks; soon it raged with greater violence in the Winter months, and during the cold season; was a connection traced between the localities of its invasions, and the marshy, ill-drained character of the land; the next season it was found to ravage dry and elevated stations with equal rage." We could fill a volume with quotations from writers, in all localities, to prove the independence of diphtheria, in regard to atmospheric causes; but the testimony advanced, is more than sufficient. Again, we can not appreciate the practical good to be derived, in furnishing farther testimony on this subject, when it all tends to the establishment of a similar and well recognised fact. In America we find it prevailing amid the granite hills of New England, and the rolling prairies of Illinois; in the elegant mansions of New York, and among the poineer hamlets of Wisconsin; on the marsh flats of New Jersey and the eminences, perched 4,000 feet above the level of the sea, in California; in the rapidly alternating climate of the Atlantic and the genial and uniform temperature of the Pacific slopes; amid the snows of the North and the malaria of the South; the damp atmosphere of the seacoast and the parched airs that render grassless the great plains of the trans-Mississippi.

It may be stated that diphtheria has in its history prevailed with an entire independence of all atmospheric causes and conditions.

Whilst hygienic conditions do not appear to bear any direct relation to the production of diphtheria, it can not be doubted that, during the epidemic prevalence or presence of the disease, they must act as predisposing causes. They certainly, in this disease as in all others, influence the severity and result of individual cases; and whilst no atmospheric or hygienic condition can bring immunity to the opulent, those under the best hygienic influences, frequently escape death, from the same causes that entail it upon the poor, where sanitary influences are ignored and neglected. During the prevalence of diphtheria, however great the care and anxiety to prevent it, we find the pestilence in the palatial mansions of the rich, as well as in the hovels of the poor. "Pallida mors æquo pulsat pede pauperum tabernas regumque turres."

It has been supposed that humidity had much to do with the causation of diphtheria; such was the conclusion of Ghisi, at Cremona; Brettonneau, of Tours, Trousseau, Isambert, Chomel, Lemoine and others; but the recent investigations of this subject in France, the report of the Lancet Commission, and the testimony of the most distinguished observers in England, France and America, have proved, that there is no reason, whatever, for this assumption. However humidity may act as an exciting, or even as a predisposing cause, during the existence of an epidemic, it is quite certain that it is powerless in the origination of the disease. As Dr. M. L. Linton, of St. Louis, very properly writes, "cold and variable weather, though not causing the disease, seem to favour it; that is to increase its mortality." This is all that can be claimed, for the action of these agents. Dr. Michel Peter, of the Hôpital des Enfants, at Paris, gives the same testimony—"a cold and damp season, with abrupt changes of temperature, has increased the number of diphtheritic affections."

The statistics furnished by Dr. Jacobi, of New York, also corroborate this view; whilst the number of cases during the months of January, February and March, vary each from 12 to 25; the Summer months furnish from 3 to 5. In 1859, the month of January exhibits 5; March, 21; April, 17; May, 14; June, 8; July, 4; etc., showing a gradual increase, during the variable weather of Spring, and a proportionate decrease, as the Summer, and less variable months come on. This, by many, may be supposed to be accidental, but we will find that the records of the next year tell the same story. In 1860, we find in January, 18 cases; February, 13; March, 26; April, 12; May 4; etc. These statistics are taken from the records at the Canal Street Dispensary, and serve, with others, to show that though cold, dampness and variable weather are powerless in the production of diphtheria, they are, during the existence of an epidemic, greatly instrumental in contributing to its extension and mortality. It is proper to state, that Dr. Jacobi's statistics are taken, during the years which marked the prevalence of the chief epidemics of diphtheria, that have prevailed in New York City.

It is thus seen, that these causes do very conspicuously contribute to the extension of diphtheria, and yet they have nothing whatever to do, apparently, with its origination. In the severe epidemic which desolated parts of Wisconsin, and which has been well described by Dr. Wm. L. Wells, of that State, we find that "the epidemic commenced in July, and ended in the latter part of October. It seemed to have arrived at the height of its violence, about the middle of August; it then abated, and in September appeared to have entirely ceased, but in October, it broke out again with increased severity. The morbific agency ceased to act, as suddenly as it began, and in November it had entirely disappeared." The deduction here is very plain indeed—the disease did not begin in a cold and damp month; but in the variable weather of October it reached its greatest severity. Dr. Semple stated to the Medical Society of London, that, in an epidemic at Bagshot, the disease "did not specially attack the puny and ill-fed, nor those living under unfavourable hygienic conditions." We mention this statement, because it is often quoted, and is calculated, if taken as the rule, (which was not by any means intended) to do great injury. It is, of course, the exception, and the testimony of all competent observers serves to show, that, as a rule, during an epidemic of diphtheria, a neglect of hygienic precautions always tends to promote the extension and mortality of the disease; it is, in this respect, like all other diseases, and it is calculated to produce a most inexcusable injury, to inculcate any other view. In the epidemics of Paris and Boulogne "those children who possessed feeble constitutions, or were surrounded by the concomitants of depraved hygienic influences, for the most part became the chief victims of the disease." Dr. Blake, of California, states, that, in his experience, dampness seems to have no relation to the etiology of diphtheria, "the most fatal epidemic that has fallen under his observation, occurred at an elevation of about 4,000 feet above the level of the sea, at Dutch Flat, and again at Grass Valley, 2-3000 feet above the level of the sea." Dr. Wooster, of California, gives the same testimony.

There is one point which should receive attention, in this connection: it is that, however powerless in regard to the causation of diphtheria, the variable weather of Spring and Autumn seems to increase its prevalence. The researches of Wade, Peter, Jacobi, Wells and others, justify such a declaration. What can then be defintely said of the etiology of diphtheria? We have examined the subject, in its climatic, meteorologic, and hygienic relations, and find that the etiology of diphtheria is entirely independent of these agencies. That, however much or little they may contribute to the extension of an epidemic of diphtheria, they are powerless in the origination of this disease. We have, however, been able to state, from the examination of the subject, that though diphtheria originates in all climates, it is chiefly found prevailing in those, marked by frequent and great changes of temperature. That when existing, it is increased by variable weather; that prevailing at all seasons, it extends most in Spring and Autumn; that the extremes of heat and cold, dryness and dampness of atmosphere, do not originate the disease, and do not specially increase it, but that rapid alterations of these agencies, if not originating, tend always to extend it. That hygienic agencies do not originate the disease, but that, with all allowance for the statements of Dr. Semple, in regard to the epidemic at Bagshot, Dr. Odriazala, relative to that at Lima, Dr. Heckstall Smith, in England, and a few others, they do, as in all other diseases, increase the extension and mortality of diphtheria. We find, in conclusion, that (as in zymotic diseases) though there is great obscurity in relation to the etiologic agencies of diphtheria, there is no obscurity whatever, but much unanimity, in regard to those circumstances which give, to these agencies, a general, diffusive and fatal tendency. We are in possession of this practical fact; that if we can not analyze and understand the causes of diphtheria, we can fully understand the method, by which the effect of these causes can be definitely and certainly diminished. However obscure the etiology of diphtheria, its study inculcates this practical lesson; that when diphtheria is epidemic, every hygienic precaution should be rigidly adopted; that alternations of temperature and of the hygrometic condition of the atmosphere, should produce prudence and diminish exposure.

Sporadic Prevalence.—The sudden appearance and rapid existence of this disease, in sections of Europe and America where distance and impossibility of communication forbid the idea of contagion, demonstrate that its sporadic generation is undoubted. Dr. M. L. Linton, of St. Louis, Mo., writes that "most of the cases, he has seen, have been sporadic." Dr. Peacock, of London, in his letter, states that he has "seen the disease, in its sporadic and epidemic forms, though he regards the latter as chiefly characteristic." Dr. D: J. Cain, of Charleston, S. C., states, that "he has seen it sporadically for very many years." Dr. Greenhow, of England, writes of a certain epidemic, "it is at least an important point, in its history, to have ascertained, that it began spontaneously in several centres, sufficiently remote from each other, to prove their complete independence." Dr. Abercrombie has described an excellent type of diphtheria, that occurred as a single and isolated case; it was severe and terminated fatally. Dr. Webster, of Dulwich, England, has given a description of six cases of this kind. In the wards of St. Thomas's Hospital, London, several cases of sporadic diphtheria have occurred; they are described by Dr. Bristowe.

It is not necessary to give farther proof of the fact, that diphtheria at times prevails sporadically; when thus prevailing, it is usually mild, though occasionally we find its several types manifested. There is nothing peculiar in regard to sporadic diphtheria, that deserves special notice.

Epidemic Prevalence.—It is this manifestation of diphtheria, that has afforded all that is valuable and interesting in regard to the disease. It has inspired that alarm and terror which leads to investigation and study.

Were it not for its epidemic visitations, the disease would have been comparatively unknown and unnoticed. This subject has been so fully examined, when writing of the history of the disease, that it would be but a repetition, to farther allude to it. There is one fact of special and practical interest in this connection; all epidemics of diphtheria begin and end, with mild and benign cases. It may be useful to bear this in mind, in connection with the treatment of the disease.

Endemic Prevalence.—Watson states, that diphtheria is endemic in Picardy and Touraine; Orton, that it has been endemic at Binghamton, N. Y., etc. We question the propriety of the use of the word in this connection. It is an established fact, that the disease is not due to any peculiarity of population or locality.

Contagiousness.—There is no part of our subject, which we approach with more care and circumspection. Pathologists have yet to acquire definite ideas, and to submit clearly intelligible laws, on the whole subject of contagion. In the obscurity and confusion now prevailing on this subject, there is an almost ludicrous disposition to take refuge in the welcome labarynth of words. One terms a certain pathological condition, contagion; another infection; a third, personal contagion; a fourth, immediate infection, and so with the endless catalogue, specific contagion, specific infection, immediate contagion, etc. We will not, in the use of the word contagiousness, have reference to the technicality of any particular authority; we will assume, for our brief purpose, that the word contagiousness shall signify, the contraction of a disease not epidemic, when exposed to its influences. When the disease is epidemic, it is manifestly very difficult to establish the fact of its contagiousness. It is illogical and unjust to claim, that any combination of circumstances demonstrates the contagiousness of a disease, when these circumstances coëxist, with the epidemic prevalence of the disease. Sporadic cases are usually and confessedly mild, and it is no proof of the non-contagiousness of a disease, that it is not propagated by such cases. It is thus manifest, that reasoning and argument are inadmissible in this connection, and it only remains, to state facts, as developed in certain well authenticated cases, and to leave the reader to draw his own conclusions. We will first present instances, serving to show the non-contagiousness of the disease, by inoculation, or by personal contact with the diphtheritic matter.

Dr. Peter, desiring to prove the incorrectness of the position assumed by Brettonneau, Valleix, Rilliét, Barthez and Bard, that diphtheria was propagated by contact with the diphtheritic matter, inoculated himself with the matter, taken from a child, on whom he had just performed the operation of tracheotomy. He experienced no inconvenient results. In 1858, such matter was discharged from the throat of a child, and lodged on the ball of his eye, a portion resting between the lid and the globe of the eye; twenty-four hours afterwards, no change had taken place. From a case, on which tracheotomy had been performed by Coulon, he took some of the matter and inoculated himself with it, in the lip. In twenty-four hours afterwards, nothing was perceived, as a result, but "a slight ecchymotic projection." In 1859, he saturated a piece of lint with diptheritic matter, and coated with the secretion, the tonsils, uvula, and posterior part of the pharynx. Not to dilute the matter, he abstained from eating and drinking; no evil resulted. Trousseau could not succeed in propagating this disease, by inoculation; he experimented upon himself and several of his pupils. Dr. Harley inoculated three dogs and a snake with diphtheritic matter; no result followed. Granting that these are fair and true examples, it does not prove that diphtheria is not contagious, but in the words of Trousseau, "that inoculation is not the means of transmission." But even this negative proof is destroyed, as we find that, in addition to other ways of transmission, diphtheria has been directly propagated by inoculation.

The *London Lancet* mentions the case of a Practitioner, whose finger was wounded, during the operation for tracheotomy, upon a diphtheritic patient; an abscess formed, and in a fortnight after, on exposure to cold, diphtheritic exudation occurred on the tonsils. The Practitioner's wife became affected afterwards; they, both recovered, though one had, as a sequel, diphtheritic paralysis. Again, a medical student, in making a post mortem examination of a child, who died of diphtheria, pricked his thumb; in spite of every precaution—"washing, bleeding, and sucking" of the thumb—the disease was contracted, and false membranes formed on the throat. It was contended, when these cases were presented to the Medical Society, that in the case of the Practitioner, diphtheria must have resulted from epidemic influence; as the period of incubation (fourteen days) was too long, to infer that the disease was the result of inoculation. Although M. C. Roger has found the period of incubation to be from two to seven days, it is proper to add, that Dr. Hatch, of California, has seen a case of diphtheria manifested, after an incubative period of twenty-one days. In the case of the student, the false membranes on the throat formed on the fifth day; here, at least, the period of incubation was not too long, to make the inference of the disease resulting from the inoculation, in any manner objectionable. Brettonneau has presented the following case: "A child, seized with diphtheria, who had transmitted the disease already to its nurse, was placed under the care of Mr. Herpin, Surgeon to the Hospital at Tours, and Professor at the School. At one of his visits, by access of cough, part of the diphtheritic matter was ejected from the mouth, while the process of sponging the pharynx was being performed, and it lodged on the aperture of the nostrils of Mr. Herpin. Occupied with his task, he neglected for a moment to remove it. A severe diphtheritic inflammation of the part ensued, which spread over the whole nostril and pharynx. Convalescence, from the attending prostration, occupied more than six months."

Dr. Gendron, of Chateau de Loire, received, on his lips, a portion of tracheal diphtheritic exudation; laryngeal diphtheria ensued and prompt treatment alone saved his life.

In 1826, at the military school at Tours, a boy, with frost-bites on the foot, used a bath that had been employed for a diphtheritic patient; the toe became the seat of diphtheritic inflammation. At Avignon, a soldier used the teaspoon of a diphtheritic patient; he suffered from buccal diphtheria. A boy, in one of the French hospitals, trod with bare and wounded foot, upon diphtheritic sputa; he had diphtheritic inflammation of the foot. Dr. J. B. Greely, of Nashua, N. H., writes, that "the wife of one of our most respectable citizens, while preparing, for the grave, the body of a child, who had died from diphtheria, unfortunately allowed one of her fingers, upon which was a fresh wound, to come in contact with some of the fluids of the body, which soon produced the effects, usually following dissecting wounds; superadded to these, were all the symptoms of diphtheria; under these she sank." It will, at least, be admitted, that the testimony, in regard to the propagation of diphtheria by inoculation, is as strong as that presented, for proving the contrary; we will see in addition to this how convincing is the proof of the disease being, in other ways, contagious.

According to Dr. Greenhow, Cortesius, in describing the Sicilian epidemic of diphtheria. reports a case, wherein a friend was requested to verify the truth of a patient's complaint, that there was a foul and constant emanation from his mouth. This fact was verified by smelling. Inflammation of the fauces and tonsils resulted and the case terminated fatally. Mr. Wade, of Birmingham, states that frequent ablution and cleanliness, in houses, where diphtheria prevailed, appeared to produce a marked immunity; but if the utensils used by the sick, were also used by the well, the disease usually extended. Dr. Greenhow states, that at a boarding school, at Whitham, England, diphtheria prevailed, and proved fatal to one of the pupils; others caught the disease and the school was disbanded; one pupil, who was convalescent, returned home to an isolated farmhouse several miles distant. About a week after her return, a sister was taken sick with diphtheria, and died in twenty-four hours. The child from the boarding school was still suffering, voiceless, tonsils swollen and fauces congested. On the day after the death mentioned, another sister, aged seventeen, contracted the disease and died, in three days. Four cases of sore throat then occurred in this family, two of them with specks of exudation. In another instance, where a family had suffered, the servant, who was convalescent, visited her friends, in a hamlet several miles distant, and at which the disease was not prevailing. A few days after arrival, two of her brothers and a sister were seized with the complaint and died.

Mr. Lambden, of England, gives the case of a labourer, at Langrick, who left his place and went to Coningsby. At the time of his arrival, he had sore throat, and soon after diphtheria. The disease was prevalent at Langwich, soon after the labourer left, and may have been prevalent at the time of his departure, but the writer (Mr. Lambden) could not ascertain this. The two places are five miles distant. His brother soon contracted the disease and died. These were the first cases in that region. Two other cases followed. A little girl returning from Mareham, where diphtheria was prevailing, to an out-lying hamlet, became sick and died; this was the first case at the hamlet. Two other cases soon occurred in the same house, but none in the hamlet. One of these cases, whilst convalescent, went to Tattershall Thorpe, where the disease was unknown; here a relapse occurred. A member of the same family was soon seized with diphtheria. Mr. Lambden furnishes also another instance; a farmer having two farms, ten miles distant from each other; his family being divided—a part at each house; at one of the houses, the disease prevailed, but not at the other. A child, apparently well, coming from the infected to the non-infected house, is soon seized with diphtheria; a child, who had never left the non-infected house, is soon after taken sick, with the same disease and dies. Dr. Greenhow gives an excellent example of the contagiousness of diphtheria, as furnished by Mr. Chavasse, of Sutton Coldfield: "Diphtheria was believed to have been imported into a boarding school, by a day boarder, some of whose family were suffering with the disease. Five cases soon occurred in the school. The patient, most severely attacked, was removed home, a distance of forty miles from Sutton Coldfield, when convalescent, and is supposed to have communicated the disease to her family; two children and a servant taking the disease and soon dying of it. Dr. Sanderson relates the case of a boy, who contracted a case of diphtheria, which was then prevalent; he was sent to Derrythorpe, several miles distant, where the disease had not made its appearance. Four days after, his sister was taken sick with the same disease, and seven days after his return, a brother and the youngest child of the family also. In the report of Mr. Simon, Registrar General of England, the following case is contributed by Mr. Eastes, of Folkestone—"No case of diphtheria had ever been seen in Folkestone until Isabella, æt. four and three-quarters, arrived from Boulogne, on the evening of July 2nd, being then in an advanced stage of the disease. She died on the following day. On the 6th of July, her sister, who had never been in France, was attacked; in three days another case occurred in the same house—all terminated fatally."

Mr. Rumsey, of Cheltenham, reports the following case: "A school-boy, convalescent from diphtheria, contracted by him at Swansea, where it was epidemic, and arriving home, in an open and healthy suburb of Cheltenham, where, at the time, there was no diphtheria prevailing, was received and embraced by one of his two sisters. On the fourteenth day afterwards, (another instance, serving to show that the incubative period, before mentioned, was not too long, to render the existence of diphtheria, due to inoculation,) she was attacked by diphtheria. Her sister, who did not meet the brother, helped to nurse her, and was attacked in fourteen days (still another instance of a long incubative period) after the first sister, by the same disease Strict separation was enforced, with thorough ventilation—the mother and nurse only seeing the child; no more cases occurred."

Dr. Goldsmith reports, that in an experience of three hundred cases, the disease was in the highest degree contagious; persons visiting the infected locality carried the disease home with them, and it was only by the strictest seclusion of these cases, that the spreading of the disease was farther prevented. This occurred at Oakland College, Miss. Dr. Hatch, of California, in a letter of December, 1860, writes that the Physicians of that State, have found diphtheria, as it has prevailed there quite contagious. Dr. D. J. C. Cain, of Charleston, S. C., writes, that "this disease, like all others, whether contagious or not, must have a spontaneous origin; but when this occurs, it then spreads by contagion. I have seen a number of cases," etc. M. Penant, who observed the epidemic, in France, and whose report is considered by the Commission on Epidemics, the best presented to them, regards this disease as contagious. Wichmann, Boehmer, Migael, Rasen and others, in Europe, adopt the same views. Jurin, Barthez, Bricheteau and many distinguished observers in England, do not think the disease contagious. The committee on epidemics of the French Academy state: "We do not hesitate to declare diphtheria contagious," and the Lancet Commission asserts, that "it is propagated by infection and by contagion." M. Perrochaud, in describing the Boulogne epidemic, says the proofs of contagion were so numerous, that no one even pretended to deny them. There are a few distinguished gentlemen in America, who do not consider the disease contagious. In an autograph letter of January, 1861, Dr. D. Francis Condie, of Philadelphia, states—"no facts have been observed, by me, to warrant the conclusion of its contagiousness." The testimony, however, that has been presented to us, by a number of the most prominent Physicians in America, is overwhelmingly in favour of its contagiousness. Those in America who have written upon the subject, most generally advocate this view—Hartshorne, Slade, Thayer, Wynne, Hatch, Blake, Fourgeaud and many others, whose names are familiar to the Profession. Dr. Thos. Peacock, of London, in a letter of December, 1860, writes: "It has affected a large proportion of those brought under its influences; three children in one family, and an aunt, who only visited at the house, all died of it; the disease is most probably propagated, by a specific contagion." Dr. Jennings, of Malmesburg, England, writes of its contagiousness: "I have had such clear proof, that I do not hesitate to pronounce it of a contagious character; in the first case, under my notice, the disease was clearly contracted by nursing an adult who sank under it; two brothers of the deceased, residing a mile distant, contracted the disease, either from a casual visit, or by attending the funeral." M. Isambert declares, that "as to the contagious character of the disaase, there can be no doubt, for many Physicians have contracted the disease." M. Empis, who has severely studied this subject, advocates the same view. Carmevale, Severinus, Nola, Lusitanus and others of the Seventeenth Century, declared its contagiousness. Dr. Edward Ballard, of Islington, England, has published the following interesting and suggestive case: "Jane J., æt. ten years, resided at Islington, with her mother, an aunt and three sisters. On May the 1st and 2nd, she was on a visit at the house of an uncle, whose daughter was kept at home, for what was supposed to be a cold. On the 2nd, this child (detained at home) manifested decided symptoms of diphtheria; the attack was slight and she recovered. On May 6th, a servant, in the same house, was taken sick, and died at the hospital, to which she was removed. Jane J., after remaining with her cousin two days, returned home. She was immediately taken sick and died on May 9th. Her mother and a sister were both taken sick on the 11th. The sister, who slept with the mother, died on the 14th." Dr. Bard, of New York, considers the disease (suffocative angina) infectious. Daviot, Crighton, Monckton and a few others, have not, always, found the disease contagious. Dr.

Rankin considers it "infectious to a limited degree." Dr. Wooster, of California, states that diphtheria, "in its manner of communication, is identical with variola, rubeola, scarlatina, and even typhoid fever." Dr. S. L. Bigelow, in a letter from Paris, to Dr. Warren Stone, of New Orleans, writes: "I believe it to be endowed with a highly contagious element; an observation founded upon the fairest observation of which I am capable, and by no means a theoretical convenience. If there exists a mediately contagious disease on earth, it is the angine couuneuse." Dr. L. N. Beardsley, in describing the epidemic at Milford, Conn., states "that the disease was contagious is a fact which, we think, must have been apparent to every person, possessed of a discriminating mind." In the publications of the Sydenham Society, the contagiousness of diphtheria is strongly advocated; the evidence of the disease being propagated from person to person, and chiefly in the country, is convincing and most satisfactory. Dr. Peter states, that the contagiousness of diphtheria has been proved by its propagation from bed to bed; by its propagation in the same bed; from one side of the ward to the other; its propagation among patients confined to bed, more generally than among those not so confined, and its extension through large families. In Dr. Ballard's cases, out of forty-seven families, only fifteen remained healthy.

We have a very fair example, in the death of the lamented and gifted Professor Frick of Baltimore, Md., of the contagiousness of diphtheria. The disease was contracted, whilst performing the operation of tracheotomy, upon a negro woman at the Baltimore Infirmary. He complained next day of sore throat; the next day had a severe chill; on the evening of that day, he exposed himself, during a bleak March wind, at a funeral. During that night, he had a severe chill, and was then confined to his bed. He was attended by Dr. John Buckler, and as a last resort, had the operation of tracheotomy performed upon himself. The case was a very severe and painful one. It is well described, by his friend, Dr. Donaldson, of the same City. The evidence of contagion here is strong. There is also strong presumption of contagion, in the details of the fatal illness of Dr. Cooke, of Brooklyn, L. I., as furnished by Dr. Willard Parker, of New York City. The last and as satisfactory proof of the contagiousness of diphtheria, as has ever been presented, is furnished by Dr. J. B. Greeley, of Nashua, N. H. He thus writes: "The mother and four children, in one family, were carried off, one after the other, by this disease. A relative of the family, from a town eleven miles distant, was sent for, and assisted in nursing the children. After their death, she went home; ten days after, two of her children were attacked with the same disease, and two days after that, the mother was taken down. The mother and one of the children died. I am informed these were the first cases in the town." No one, on this accumulation of the most convincing and satisfactory evidence, can longer deny the contagiousness of diphtheria; the proof, thus given, is enough to satisfy the most skeptical and exacting. Whilst the disease is undoubtedly contagious, it certainly is not, however, always so. The practical deduction to be drawn, from all the evidence, is this, experience does not justify any panic or alarm on the subject of the contagiousness of diphtheria, whilst at the same time, it teaches that all unnecessary exposure is reprehensible. That though it can not be strictly considered dangerous, for friends and nurses to minister to the sick, it is certainly advisable, for those not maintaining such relations, to avoid communication with them. That, whilst those exposed, do not generally suffer, it is undoubtedly true that they do not uniformly escape.

Incubation.—By a careful examination of all the French records, Dr. Peter found that the period of incubation lasted from "two to fifteen days, but most often from two to eight." Dr. Comegys, of Cincinnati, Ohio, writes (November, 1860,) that "during the incubative stage, in the cases seen by me, there seems to be a state of exhilaration, which may be denominated diphtheritic intoxication." Some of the European writers mention the same peculiarity, although it should not be supposed, that this is common or general. The approach of the disease is, as a rule, gradual and insidious, and the health and condition seem very little impaired. Dr. Cotting, of Roxbury, Mass., says: "I have seen a child, six to seven years of age, playing in the melting snows of Spring, within twelve hours of his death." This slight and gradual impairment of physical and mental vigour is so insidious, in its course, as to commonly deceive the most watchful. It has been a chief characteristic of this disease throughout its entire history. Dr. Barbour, of Falmouth County, Ky., states that he has observed frequency of pulse to precede all other premonitory symptoms. The Medical Society of London were disposed to question the fact of an attack of diphtheria, being the result of an inoculation with diphtheritic matter fourteen days previously—assuming that the incubative stage was too long to render such a position tenable. M. H. Roger had at that time stated, that from actual cases the incubative period extended from two to seven days. The records of diphtheria in France, England and America, the cases cited by Drs. Peter, Ballard, Jacobi, Rumsey and many others prove that the incubative period frequently extends to the fourteenth and fifteenth days. Hatch, of California, has known it to extend to the twenty-first. It is not necessary to say more upon this subject.

Duration.—Dr. Wooster states, in regard to the epidemics of diphtheria in California, that the duration is very uncertain, and there is no fixed characteristic in this connection. In most of the fatal cases, it may be definitely said, that death takes place in from two to six days; in these cases, death is usually caused by laryngeal, or bronchial complication. Death may take place, during convalescence, from asthenia. The duration of the attacks, where death does not take place, and where there are no complications or troublesome sequelæ, is from six to twelve days; where complications and sequelæ supervene, it is protracted to months, and in some cases, to more than an entire year. Some cases, where death does not occur, last not more than two or three days. In 120 cases that occurred at Hopewell, Ohio, the average duration was eight days. This statement was drawn up by Dr. T. A. Reamy of that place. In the epidemic at New Carlisle, described by Dr. Meranda, "the average duration of fatal cases, was seven days." Dr. Wells, who has described the Wisconsin epidemic, states "that, when without complications, the disease ran through its stages in a few days. The false membrane disappeared in some cases, in two days, in others, from ten to fourteen days." Dr. Cotting, of Roxbury, Mass., found that after the seventh day, the crisis was past. From the records of the Canal Street Dispensary, New York, where over

200 cases of diphtheria have been treated, Dr. Jacobi states, that "cases of average severity take from five or six, to ten and twenty days to recover—the mild cases will get well in five or eight days." Dr. Cochran, of Iowa City, writes that "the duration of the disease varied from five to fifteen days, but generally, about ten or twelve days." The records of the French and English Physicians furnish very similar testimony. The duration of cases must necessarily vary; the testimony given will, however, enable us to approximate the truth.

Relation of throat lesions to result.—Dr. Greenhow, as the result of an extended experience, states, that though "the severity of the disease is commonly in proportion to the continuity and density of the exudation, yet cases sometimes occur, in which the membranous exudation is inconsiderable, and yet the general symptoms are of a very alarming kind." He has uniformly observed, that the pain and difficulty of swallowing afford no index of the intensity of the disease—it is frequently, in all epidemics that have occurred, slight in severe cases and severe in slight cases. Dr. Heslop, has found "prostration quite disproportionate to the amount of disease in the throat, coming on early and remaining, after the throat lesions had disappeared." Dr. Copeman, in his essay, declares "that the constitutional symptoms bear but little proportion to the local mischief." (According to almost universal testimony, since presented, Brettonneau's idea, that ulcaration never occurred, is incorrect.) Wade, of Birmingham, writes, that the patient not unfrequently dies, when the disease is to all appearances very slight. Dr. Rochester, of Buffalo, N. Y., in his letter of November, 1860, writes thus: "the throat symptoms are not always present—in one case, attended with great prostration, the exudation was only seen on the roof of the mouth; in another, the skin, at the verge of the scalp and behind the ears, was its principal seat, with febrile movement and much prostration." In the Wisconsin epidemic, "the throat symptoms bore no relation to the severity of the local affection." A writer in the London Lancet, in regard to their epidemics, thus writes—"the severity of the local phenomena, bears no relation to the severity of the general affection, nor to the character of the convalescence. There are cases, in which the local manifestation is from the first overshadowed. In some cases, where the throat manifestation was far from being intense, (yielding readily to treatment,) the consitutional symptoms were severe. In two of the fatal cases, the local symptom was early and easily checked, and was so mild, during its continuance, as to give but little annoyance, either to patient or Physician. In other cases, this state was reversed, and there were severe local symptoms, with no corresponding constitutional disturbance, and with rapid convalescence." Dr. Cotting testifies, that "the formation of the membrane does not always correspond, in amount, to the severity of the other symptoms." Dr. Jacobi observes, in regard to the cases at the Canal Street Dispensary, "a great number have come under observation, in which the local exudations were, by no means, in proportion to the character of the attack." Dr. Peter states, in regard to the French epidemics—"the amount of exudation does not indicate the severity of the disease, as fatal cases will frequently occur, where the membranes are few and small." No argument or reasoning, on these subjects, would avail anything, and we must furnish, what is demanded to prove the positions assumed—sufficient and competent testimony. It is evident, from what has been presented, that it is safe to say, there is no direct relation between the lesions of the throat, and either mild, or fatal cases, and where this relation does exist, that it is the exception, and not the rule.

[TO BE CONTINUED.]

ECLECTIC DEPARTMENT.

"Floriferis ut Apes in Saltibus Omnia Limant."—LUCRET.

I.—PROPHYLACTIC EFFECTS OF QUININE. By SAMUEL LOGAN, M. D., Charleston, S. C. *

The following table was compiled with the view of enabling the writer to arrive at some definite conclusion as to the prophylactic power of quinine. The items were collected, either by himself or the medical officer in charge, to whose cheerful coöperation he is much indebted. It will be observed that in no single camp was the

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*Recently elected Professor of Anatomy in Medical College, Va.

agent unanimously adopted; in many, indeed, its use was resorted to by a minority only. So far as my object was concerned, this was rather fortunate than otherwise, as it has enabled me to *compare* the results among *those situated under the same identical circumstances* in all particulars, *except the use or neglect of the agent* whose effect we are investigating. I would call attention to the fact, that much more importance should be attached to the results developed under these circumstances, than when the experiments are made with separate corps, *all* of whom either took or neglected to take the quinine as a prophylactic. I know of no statistical researches, except of my limited extent, in which this peculiarity obtains—in fact our statistical knowledge on the subject is extremely limited—and I therefore deem it of some importance to invite the attention of the Profession to the table I have collected. All of the troops from whom these items have been gathered, were stationed in the most highly malarious regions in the Confederacy.

With the exception of a few favoured localities, the whole country has to be abandoned by its white inhabitants, as the Summer approaches. They usually resort to the pine lands or the sea-shore about the first of May, and return about the first of November.

The peculiar topography of our Southern Atlantic lowlands, is well known, but may be briefly mentioned. The coast line is indented with numerous inlets, bays and salt-water creeks, which form a complicated net-work, extending from ten to twenty miles from the sea-shore proper. These creeks and estuaries are generally fringed with wide plains of salt-marshes, except when the larger rivers freshen them, and form the valuable, fertile rice lands. The islands formed by this net-work of water-courses are, with the exception of the marshes, composed of a light, sandy soil, in which the stratum of clay lies from three to six or eight feet below the surface. They were devoted to the culture of the famous "sea-island" or long staple cotton. As we come more towards the interior, and especially near to the larger streams, this light sea-island soil more or less disappears and we have level tracks of a stiffer earth, occasionally sandy, but in most cases having a stratum of red clay, either near or quite up to the surface. The undergrowth is here extremely luxuriant, and reminds one of the pictures of African jungles. The country is intersected with swamps, some of them cultivated in rice, and presenting a considerable alluvial deposit upon a bed of blue clay. Next to this belt of "lowlands," we come to the *pine* region; a dry and porous sandy soil, with clay at a considerable depth, the sand in the higher localities being of a bright yellow or white, and in the lower ones dark grey. This flat belt of "pine barrens" gradually changes into the rolling country of the interior, and so on up to the mountain slopes.

The malarial fevers prevail throughout the sea-islands, with a few exceptions; through the whole of the belt of level lowlands, and to a considerable extent in the lower of the pine lands. The higher portions of the latter, and certain favorable localities along the sea-shore and among the sea-islands, are more or less exempt, and are resorted to during the Summer months. The Federals have occupied almost all of the healthy sea-shore, while our lines of defence extend through the sickly low-lands, just within the belt of sea-islands. In order to promote the health of the troops, such of them as are located along the lines in the neighborhood of healthy pine land resorts, are moved in Summer months to such places. Those commands, however, who do the picket duty, even though their Summer camps be pitched in a healthy pine-land village, are still subjected to malarial influences, while on this out-post duty along the line, day and night, at an average of about one-third or one-fourth of the time. Those commands who were, as a general rule, retained during the Summer in their healthy resorts, were not provided with quinine to use as a prophylactic, and have not therefore been made the subjects of investigation. They had little or no fever among them; while those whom it was necessary, for strategical purposes, to retain in the unhealthy country, and the cavalry who did the picket duty in sickly localities were provided; and a reference to the table will show to what an extent each command availed itself of the agent, and what were the results.

In some cases the quinine was taken in the morning, in others at night, four grains being the quantity used. Some of the medical officers believed before-hand in its efficacy; others held their opinions in suspense, while a few disbelieved in its use as a prophylactic. I was among those who were not inclined to form a definite opinion until a larger mass of evidence had been collected in such a manner as to show the *comparative* results among those placed under identical circumstances, in all particulars, excepting the use of the agent. It will be well to make a few remarks concerning the different corps and their precise localities.

1st. *The Rutledge Mounted Riflemen and Horse Artillery* did picket duty along the line between the Coosawhatchie and the Combahee rivers, a section of country of an undoubted malarious character. They were camped in a tolerably healthy pine land village, McPhersonville, three and a half miles from the Pocotaligo Station, on the C. and S. R. R.

2d. *Captain Earle's Battery* was stationed during the Summer of 1862, on James Island, near Charleston S. C. (a location, of notoriously bad reputation for health) until September, when it was moved to a position about six miles below the Hardeeville station, on the C. and S. R. R., not far from the Savannah river. They gained nothing by the change, so far as a healthy camp was concerned. The next summer they were stationed at and near the Green Pond station, between the Combahee and Ashepoo rivers. This also is a highly malarious location.

3d. *Company I, Third S. C. C.*, as I am informed by Dr. M. W. Bailey who has charge of them, was "stationed in the interior of Wadmalaw Island, a situation, from the evidence of the physician who practised there before the war, exceedingly unhealthy as regards fevers, in the midst of swampy lands and numerous stagnant ponds."

About four grains of quinine was given each day at "Retreat," in which quantity it was administered from the 1st July until the 1st October.

Dr. Bailey goes on to say, that not being supplied with a sufficient amount of the article he continued, from that date, to administer it in reduced doses of two grains, until about the 15th of October. Whether from the effect of climate, or from the reduced quantity given, I had at this time many more cases of fever.

4th. *Company B, Sixth Regiment, S. C. C.*, was stationed near the river bank of the Edisto, a situation personally known to me as very unhealthy. With them also, the quinine was reduced from October 1st, from four to two grains, and stopped on the 15th.

5th. *Company D, Fifth S. C. C.*, arrived at its camp near the Combahee river on the 27th September, having been stationed in Charleston during the midsummer. The men were exposed on picket in a very malarious country, at the most unhealthy season, but Captain Z. Davis, in command, immediately commenced to issue "four grains of quinine in a wine glass of whiskey" every morning at reveillé, and continued it until after frost.

6th. *Blake's Battery* was stationed during the whole Summer on James Island. They moved camp three times, but were always located in positions which Assistant Surgeon Mallory C. Rivers in charge—who has kindly furnished me with the details—knows to have been unhealthy, from his intimate acquaintance with the facts before the war. The quantity of quinine issued was, as in the other cases, four grains daily.

7th. *Kirk's Partizan Rangers*, and the five companies of the 4th S. C. C., were situated in all respects as the Rutledge Mounted Riflemen, and had the same duty to perform. They also took the same quantity of quinine.

8th. *The Washington Artillery* spent the Summer in a very malarious location, amid the swamps between the Edisto and Ashepoo rivers. Assistant Surgeon W. S. Canneu, writes that "on the 1st of July, 1863, the administration of quinine was commenced, in four grains doses every night, and continued until the 12th of November."

I have only to remark, in conclusion, that in no case has any cumulative effect been observed to follow the continued use of the quinine.

It would seem from these statistics that, though not an absolute prophylactic, the degree of protective power possessed by the agent fully warrants its use. If four-fifths of the fever cases are prevented, it should surely be used. It may be well to explain that under the head of "*number who took quinine irregularly*," are included those who would forget or neglect to take it some three or four days in the week, or take it one day and forget it the next, or omit it for a week at a time.

CONSOLIDATED TABLE OF CASES.

Total number who took no quinine, 230; had fever, 134; ratio per 1,000 of fever cases to patients, 582.60, or 1 in every 1.71 patients; ratio per 1,000 of severe cases to total cases, 313.43, or 1 in every 319 cases.

Total number who took quinine irregularly, 246; had fever 96; ratio per 1,000 of fever cases to patients, 390.24, or 1 in every 2.56 patients; ratio per 1,000 of severe cases to total cases, 291.66, or 1 in every 3.71 cases.

Total number who took quinine regularly, 506; had fever, 98; ratio per 1,000 of fever cases to patients, 193.67, or 1 in every 5.16 patients; ratio per 1,000 of severe cases to total cases, 326.53, or 1 in every 3.06 cases.

II. OZONE: ITS RELATIONS TO HEALTH AND DISEASE. An Essay which received the Fiske Fund Premium June, 1861. By E. S. GAILLARD, M. D., of Richmond, Va.

[CONTINUED.]

After all that has been written on this subject, the true nature of malaria is not yet understood. The theories of McCullough and Ferguson, Dwight, Mitchell and others, have, so far, only served to make us confess a total ignorance in reference to the subject of which they each so interestingly wrote. This subtle poison we can only recognize in its effects; its cause, nature and essence are yet wrapt in the mists of a vague hypothesis; it is the toxic apocrypha: the mysterious hieroglyphic, which, transcribed by Nature's hand, has not yet found its Champollion. "It settles over thin and barren soils, and over wastes that have been from all times desolate; over places in which Southern suns ripen delightful gardens, and about the sites of Cities in which the pomp of palaces has passed away." Whether amid the highlands of the Hudson, or the everglades of Florida; the gold-sparkling quartz-rocks of California, or the rolling prairies of Illinois; the fens of England, or the arid sands of Holland; the broken arches of Rome, or the ruined marbles of Greece; its history is ever the same, its obscurity inilluminable. Malaria is a subject which the Profession has everywhere to encounter; a subject which, carefully studied and scientifically investigated, in all latitudes, gives but one result—an unbroken record of failure and disappointment. Whatever its composition, however, it is quite sufficient for us that its existence in the atmosphere is incompatible with health, and that, in ozone, we recognize the agent which alone is able to neutralize and destroy it. Ozone is able to destroy malaria, for no deleterious substance is found in any atmosphere conspicuously manifesting its presence. Where ozone is, malaria is not; and where malaria is found, ozone has been consumed. Being the most rapid oxidizer known it is capable of destroying (as far as its supply goes) all the noisome and pestilential exhalations which generate idio and koino-miasmata. It should be recollected, that ozone is generated in less quantities in dry atmospheres, and that its supply is less under high temperatures. The deduction here is manifest. Ozone is elaborated at all seasons; but where poisonous emanations abound, it is largely consumed; where dryness and heat of atmosphere coincidently exist, the supply of ozone is small. Ozone, in Summer, is elaborated, but poisonous emanations then most abound, and it is of course largely consumed; in Summer, the dryness and heat of the atmosphere conspire to lessen the supply of ozone. The natural consequence of all this is, that where the consumption of ozone is increased and the supply diminished, it must at such times cease in a great measure to exist; and that we must suffer from the atmospheric poisons which most prevail in the absence of ozone. Among the most prominent of such poisons is malaria. Where malaria prevails and the ozonoscope remains unaltered, all of the diseases consequent upon the existence of malaria soon demonstrate to us the direct relation which ozone, manifestly, bears to them. It follows, from the converse of this reasoning, that ozone should be greatest in Winter, when its supply is largest and its consumption least; observation has proved that such is the case. Being least formed and most consumed in Summer, when at the same time all pestilential and malarial exhalations abound, it is evident that countries which most generate such exhalations must be chiefly subject to the diseases which result from them, and that these diseases must prevail most in Summer. The history of every country proves that such is always the case. It is known that though most soils are subject to malarial influences, such influences almost peculiarly belong to alluvial soils. It is therefore manifest why alluvial soils should be unhealthy, and why, when we have a coincidence of high solar heat with alluvial soil, malarial diseases should be malignant.

We can understand, also, why malarial diseases should prevail in countries previously unvisited by them. Let us explain this:—Chemical and physical agencies produce ozone; the decay, diseases and deaths of animals and plants consume it. Have the balance between the relative amounts of ozone and miasm destroyed and disease prevails. Again have this balance undisturbed, but introduce high solar heat, and disease also prevails. Let solar heat be no higher than usual, but have an unusual and inordinate generation of miasm, and the result is again the same. Lastly, let us have protracted and intense solar heat, with the extreme of animal and vegetable decomposition, and malarial diseases of malignant type invariably prevail; this is seen in the tropics. This balance between the chief cause and the preventive agent of such diseases is unfortunately too little hypothetical, for its existence is constantly seen in Southern latitudes. Ozone is manifested in the atmospheres of large pine forests. The ozonic atmosphere of villages, in such localities, is usually sufficient to protect them from malarial fevers provided the surface of the soil be not too long neglected. Unless the decaying mass of vegetable matter on such soils be destroyed by burning it, or in some other manner, and the usually recognized sources of malaria be thus destroyed, severe forms of fever not unfrequently prevail. If these consumers of ozone be destroyed, such villages usually remain healthy, but a long neglect of this precaution soon entails its own penalty. It has been the histroy of most of the newly settled States of America, that they were first remarkable healthy; that they then became unhealthy, and then returned to their original condition. It requires, apparently, very little to disturb the balance between health and disease; any of the causes enumerated being quite sufficient to produce this effect.

In moving into "a new country," the decadentia of the soil are found, though in immense mass, in a quiescent state. Let us trace the effect of settlement. The various instruments of terra-culture are soon set in motion; the decaying mass of vegetation is upturned, scattered, and, by increased exposure of surface, converted by Summer suns and rains into material for the prompt and fatal generation of disease. The ozonic principle of such atmospheres is subjected to a double source of destruction—the miasm generated, and the decaying vegetable mass which generates such miasm. Malarial diseases are now rife. But these temporary causes are removed; decay takes place, vegetation is soon resolved into its primitive elements, and banished health returns again. In alluvial soils, these causes are permanent, and with the existence of permanent causes we have permanent effects, in malarial diseases, constantly manifested. In tropical regions, where we have an exaggeration of these evils, malarial fevers prevail at all seasons and with great malignity.

The remarkable properties of ozone explain to us the cause of that marked mitigation of symptoms, in such fevers, on the supervention of a thunder storm. The oxidizing properties of ozone make intelligible the existence of malarial diseases in ferruginous localities—as in India. After a thunderstorm, the mephitic exhalations of the atmosphere are destroyed. In the iron districts, the peculiar soil rapidly consumes, by oxidation, the ozone generated. We have thus shown that the dangerous accumulation of miasm is prevented by ozone, whilst the pernicious concentration of ozone is diminished by miasm; that miasm being productive of malarial fevers, any agent, capable of destroying or diminishing it, bears, by its proportionate presence or absence, the closest relation to the existence and malignity of such fevers; that the causes generating ozone, or the supply of ozone, are least in Summer; that the consumption of ozone is greatest in Summer; that the effect of these causes is the absence of ozone; that the absence of ozone coincides with the existence of malarial fevers; that the existence of such fevers is in a direct ratio with the presence or absence of ozone; and finally, that there is thus established a convincing evidence of the relation of ozone to malarial fevers. It may be urged, however, that these are but declarations, or even speculations, and that to produce conviction they should be fortified by evidence and testimony. An increasing skepticism, in the Profession, has at least accomplished this important result, that theory and hypothesis are no longer attractive, and that fact and testimony are made the great touchstone for all that is offered for currency. We then exchange reasonings and deductions, in establishing this position, for the materials now so rigidly demanded, and offer in their place testimony and fact. These could be given in detail and endorsed by a long list of authcrities, but we will state them briefly and concisely, as the evidence is sufficient to produce conviction in the minds of the most skeptical.

Boeckel's tables show that the presence of malaria coincides with the zero of the ozonometer, and his tables only reflect his published opinions. He is one of the oldest, best and most reliable of European investigators. The experiments and records of Scoutetten establish the same fact. MM. Schönbein, Bérigny, Wolf, Simonin and others, have all adopted the same views; their tables and observations have demonstrated the truth of this position. Our own experiments and those of other American observers give the same results. We advocated this view seven years ago. We have received from Captain Pope, of the United States Army, a most interesting and valuable meteorological table (in manuscript) in regard to the same subject. These tables give the registers of the barometer, thermometer, hygrometer and ozonometer together; with marginal observations on clouds, wind, rain, colour of sky, &c., that serve as valuable aids in the study and analysis of all that is recorded. A part of these observations Capt. Pope made at Indianola, Texas; a second part, on the march from the Gulf of Mexico to the higher table lands of the Continent: and the remaining portion, at an altitude of 3,900 feet above the level of the sea, in the open table lands, seventy miles East of the most Easterly chain of the Rocky Mountains. These observations are interesting on account of the vast area traversed whilst they were made; as being taken from a section of country but little known to science, and lastly (which is of the most consequence), on account of the important results they afford. As long as Capt. Pope was on the Gulf coast and in a malarial atmosphere, the register of the ozonometer was never over 2, 3, or 4; most of the time (almost the whole time) at 1; occasionally at 2, and very rarely indeed at 3.

On no section of the American country would one, wishing to examine the relations of ozone to malaria, be so desirous of making his observations, as on the lands bordering the Gulf of Mexico.—Most of these observations were made at Indianola, Texas, on Metagorda Bay. Boeckel's testimony is, that the existence of malaria coincides with the zero of the ozonometer; Capt. Pope's tables show, that in the malarial regions of Texas (and we could desire no better type) the ozonometer almost constantly registered 1; at times 2, and occasionally 3. Capt. Pope leaves Indianola on the 6th of April (when ozone should be abundant and malaria comparatively absent), the ozonometer registering 2; his march is towards the high table lands. On the 11th of the month the register is at 4; on the 16th, at 5; on the 21st and 23d, at 7 and 8; on the 25th of April we find it at 10.* These figures, just given, convey a clearer and more convincing lesson than volumes of theory; they suggest the entire truth belonging to the subject. They tell what a foot note, accompanying the tables, uselessly explains—that the march was from the malarial low lands of Texas to the pure atmospheres of the table lands. About the 1st of May the march is across " the deep valley of Devil's river ; heavy growth of timber and rank vegetation." Is there any change in the ozonometer during the march across this malarial valley? It sinks at once from 10 to 5; then to 3; then to 2, where it remains. In emerging from this spot, on the 4th of May, the register is at 3 again; on the 6th of May it rises to 6; and on the 7th and 8th it is where it was before entering this locality; at 10. The ozonometric record gives, without explanation, the history of this transit; it tells its own story.

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* We have all of these tables in manuscript, but they are too voluminous to introduce into an essay of this kind; if ever necessary, they could be submitted in the form of an appendix.

But it may be claimed that this is all accidental, a coincidence that might possibly occur; that the deductions made are partial, or at least premature. Let us examine farther, and go to the record for further proof. From the time last mentioned, the register varies, 6, 7, 8, 5, 6, according to the circumstances of the march. About the 31st to the 24th of the same month, the register suddenly falls to 3. Is there any cause for this? In the margin of the tables, we read that the march is now through the valley of the Pecos river. On the 25th, this is almost accomplished; the register is now at 5; the valley is passed, and on the 26th and 27th the register is at 9 again. Is this accidental again; is it another coincidence; or does the candid mind of the reader induce him to admit that it is the clearest proof? From this time onward the observations were made exclusively on high table lands, where the atmosphere is clear, pure and bracing. We find now that the ozonometric record is almost always at 8, 9, and 10, seldom as low as 6; but three times at 5, and never once below this. This embraces a period, from the time of leaving the valley of the Pecos river to the 31st of August. This last period gives the record of the atmosphere in these localities, at the most interesting period of the year, in connection with our subject. In the low malarial lands and valleys, the ozonometer registered 1 to 5; in the table lands it registered 7 to 10, and occasionally 5. In these regions the cold whether soon makes its appearance after this period, and of course the ozonometrical record would be uninteresting, in its relations to malaria. It is sufficient to say that after this time, it remains most of the time above 7 and 8. If, in Summer, the record in these localities (on the table lands) is on a moving scale from 7 to 10, we cannot expect, in Winter, that it would be otherwise than just mentioned, steadily above 7 and 8. In the malarial period of the year, we find the ozonometer seldom registering more than 2 or 3; at Indianola, even as early as April 6th, it registers only 2. The table-land atmospheres, even in July and August, gave a record of 7 to 10.

These facts are taken from the statistics made at Indianola and on the high table lands adjoining. They need no farther comment than to again draw attention to the striking changes manifested, during the transit of the malarial valleys mentioned. We have thus introduced testimony and fact, and leave these to speak for themselves.

Capt. Pope writes, that the inhabitants of these table lands enjoy a marked and unusual degree of health; we know what the malarial fevers of Texas are. If it can possbly be objected, that these observations extend over a very limited period of time (as is apparent), we will, in answer, quote from one of Capt. Pope's autograph letters, December, 1859: "The observations which I send were all carefully made, and they will perhaps answer your purpose; those of the subsequent years are almost identical. I have made several journeys across the Great Plains, and have made these observations both going and returning, and they exhibit, in all cases, precisely the results set forth in this paper. The tables sent were made in 1855, and were confirmed by others made in 1856, 1857, 1858, and 1859. Capt. Pope writes, that in his experience "ozone increases in quantity, rapidly and regularly, in receding from the low lands which border the Gulf of Mexico, and is greatest on the summit of the table lands, in the interior. On the low lands, animal and vegetable decomposition are rapid; on the table lands, extremely slow, and with little escape of offensive gases. This difference is manifest, even when the thermometer marks the same temperature in both regions. There is but little moisture on the table lands, as the tables show, while there is a great deal on the lands bordering the Gulf of Mexico." On account of this fact of moisture, there should be more ozone in the atmosphere of the low lands than in that over the high table lands; for it is claimed by most observers that moisture is eminently favorable to the production of ozone.

Dr. Smallwood, of Montreal, Canada East, states that "three thousand observations confirm this truth—that ozone is not formed unless the vapour of water be present." When moisture is excessive, as in the low lands of Texas, we can appreciate how great must be the malarial destruction of ozone, and why it is that in such places malarial fevers must become prevalent and malignant. Capt. Pope's carefully and scientifically prepared tables show that it is not necessary that there should be any great deal of atmospheric moisture to admit of an extensive generation of ozone. His ozonometer frequently gives 8, 9 and 10, when the hygrometer shows that the atmosphere is not damp; though the high registers of the ozonometer most frequently coincide with the damp registers of the hygrometer. In the high table lands a moist atmosphere almost always attends an abundant manifestation of ozone, and conversely; whilst in the low lands both dry and damp atmospheres exhibit but a feeble presence of ozone. Dr. Smallwood's declaration, based on "three thousand" experiments in this connection, is in the main true, "that ozone is not formed unless the vapour of water be present," though Capt. Pope's tables unquestionably demonstrate the fact, that it is not neccessary that this vapour of water should be so abundant as to constitute dampness in the atmosphere; for on those high table lands, in the months of July and August, when the hygrometer did not demonstrate a damp atmosphere, the ozonometer recorded 8, 9, 10 of the scale. That a damp atmosphere is favorable to the production of ozone, however, both of these and all other observers testify. Where malarial atmospheres are damp and the ozonometer is at zero, the deduction is irresistible that ozone has been formed and destroyed.

We are then prepared to admit, from theory and fact, that there is a demonstrable relation between malaria and ozone; between the presence of ozone and the absence of malarial fevers; between the existence of malarial fevers and the absence of ozone. Before passing on to consider another branch of our subject, we will give another quotation from Capt. Pope's letters, as furnishing interesting information relative to the physical and meteorological conditions of these high table lands.

"On the table lands of this continent (New Mexico and elsewhere) there are few if any swamps; the vegetation is extremely sparse and very imperfectly developed. Forests are rare except those of pine and cedar, as found on the mountains, and there the trees are stunted and dwarfed. The grass of the table lands is very short, and rarely grows more than three or four inches high. Animal and vegetable decomposition is very slow in its action, and attended with little escape of offensive gases. Very little moisture is found in the atmosphere, and the rain-fall is not one-fourth what it is in the driest regions East of the Mississippi. Pulmonary diseases are almost unknown. It is worthy of remark, that in New Mexico (the only inhabited portion of the table lands) small-pox, measles and other cutaneous diseases are almost innocuous; it being very common to see, in the villages, children playing in the streets while suffering under the worst forms of confluent small-pox. It is but rarely that any marks of the disease are left, and the disease is milder than in any part of the United States. The same may be said of measles, &c."

We proceed now to consider the relation which ozone bears to the production of pulmonary disorders, and to the induction of inflammation in the Schneiderian membrane. The ozonoscope, held before a half-closed door, has a deep hue given to it. Every one knows the effect of subjection to this kind of exposure; the ozonoscope elucidates the cause. It is a recognized fact, that Eastern winds in America, and Western winds in Europe, as coming over the sea, are frequently productive of pulmonic disorders, and almost always a source of aggravation, where such disorders already exist. Travellers in Africa tell us that pleurisies, pneumonias, &c., mark the coincident occurrence of certain winds. Schönbein mentions that ozone was manifested in marked quantity during an epidemic of influenza and a general prevalence of pulmonic disorders. There seemed to be a division of opinion among observers in Europe, as to the exact relation of ozone to pulmonary diseases, and accordingly extended observations were made for the elucidation of the subject. The testimony in this connection is voluminous, and although not without discrepancy, the conclusion now declared is established by facts. The tables, like those bearing upon other branches of the subject of ozone, are very interesting, but with' the rest (on account of their great length and variety) must be omitted. We will at least give the most interesting testimony that is based upon them.

Spengler testifies, that in an epidemic of catarrhal fever and pulmonary disorders, the ozonometric degrees increased with the diseases, and diminished when they disappeared and as they disappeared. Schönbein confirms this testimony; so also does Scoutetten, and recently Clemens has stated that such are the results deducible from his tables. M. Boeckel, Jr., kept a faithful record of all the cases entering the large hospital at Strasburg; from these, he selected all suffering from pulmonary, catarrhal, bronchial, laryngeal and throat disease, carefully comparing the numbers admitted through a long period of time, with the fluctuations in the ozonometer. His conclusions are, that the number of pulmonary diseases (and the deaths from such diseases) is in a direct relation with the quantity of ozone, and in inverse relation with the degree of temperature. When there is much ozone, with a low temperature, such diseases and deaths are numerous; when there is little ozone, with high temperature, exactly the contrary. When there is much ozone, with high temperature, these diseases and deaths are yet marked in frequency. When there is little ozone, with low temperature, there is nothing specially peculiar, though at such times the deaths are often below the average. Scoutetten s tables lead him to conclude, that in the production of pulmonary disorders, ozone is the chief cause; that of temperature, with hygrometrical conditions, being secondary.

It is only when the ozonometric record fluctuates much, that a sudden accession of ozone leads to pulmonary trouble; when it is fixed at 8, 9, 10, as on the high table lands of Mexico, an ozonic atmosphere does not produce such disasters. In these cases and among the Esquimaux and other races occupying such atmospheres, the air-passages learn, as it were, to tolerate this stimulus; a stimulus which, when unusual, produces its peculiar effects. This law we see constantly illustrated; the habitual use of any substance, locally or constitutionally poisonous even, produces in time a comparative and at times a total exemption from its ordinary influences. The painter is comfortable in an atmosphere loaded with the emanations from his pigments and their various and offensive menstrua; an atmosphere that brings nausea and sickness to the temporary visitor. The workmen in gas factories endure the constant inhalation of carburetted hydrogen, when an atmosphere containing even a trace of it, brings to most persons loathing and disgust. The opium and hashish eaters, the tobacco and arsenic smokers, use, in time, with impunity, substances which bring prostration and death to those not gifted with their astounding perseverance and singularly manifested fortitude. But to return to the insusceptibility of the air-passages to habitual irritants; it is well known that the "dry-grinders" of Sheffield, and other manufacturing towns, live to middle life without apparent inconvenience, in an atmosphere that inevitably sacrifices them in the very strength of their manhood. Whether the explanation be a reasonable one or not, the fact is clearly demonstrable, that persons may, with impunity, live in an atmosphere saturated to 10 of the scale with ozoze, and not only live, but enjoy the most perfect health; when if the atmosphere vary much in the amount of its ozone, a sudden accession of it is attended with catarrhal and pulmonary disorders.

Phthisis is not included in this connection; for its causes and relations are too multifarious and at the same time specific, to admit of its being classified with ordinary pulmonary disorders. Phthisis seems not to be influenced by the ozonic conditions of the atmosphere. In Florida, where the ozonometer marks zero, or the lowest degrees of the scale, it is scarcely known; and if brought there, in time is often arrested. On the contrary, in the Polar regions where the register (from cold, ice and other meteorological and physical causes) is mostly at 10, phthisis has never been seen. Dr. I. I. Hayes (Surgeon to the U. S. Grinnell Arctic Expedition, and chief director of the Expedition which sailed during the year 1860 on the same philanthropic, but almost fruitless mission), thus writes on the subject of disease in those latitudes:—"We are astonished at the complete indifference of the Esquimaux to cold; not only do they seem indifferent to it, so far as concerns their physical comfort, but they are able to resist all of its depressing influences. They are a strong, robust and healthy race; scurvy is unknown among them; and I have never known or heard of one instance of tubercular disease. It is worthy of remark, that the climate is one of unusual healthfulness and that scurvy and phthisis are unknown among the natives." Capt. Pope makes a very similar statement, in regard to the inhabitants of the table lands of New Mexico. It seems, then, that we have the negatively-proved fact, that ozone does not influence phthisis; that hygienic influences, life in the open air, with a disregard of temperature, are in this disease both therapeutic and prophylactic; that when not the result of City atmospheres and associations, of the dwelling together of masses in vitiated air and of hereditary transmission, this scourge of our race is unknown. It is not affected by ozone.

TO BE CONTINUED.

CLINICAL LECTURES.

"Ex Principiis, nascitur probabilitas; ex factis, vero veritas."

Clinical Notes of Cases Treated in Different Hospitals of the Late Confederate States—Continued. By James M. Holloway, M. D., Professor of Physiology, University of Louisville, Ky. [From private Note-Book.]

Case 12.—C. S. Chimborazo Hospital, Division 2, Richmond, Va.—N. P., corporal, Co. B, 51st North Carolina Regiment, farmer, aged 40 years, health good; received a gun-shot wound of the left leg, May 16, 1864, at the battle of Drewry's Bluff; ball entering to the inner side of tubercle of tibia, emerged through calf at a point two and a half inches below, passing, in its transit, entirely through that bone. He states that he was in the act of stepping forward in the line when wounded. Patient came under my observation on May 23d. No unpleasant symptoms at this date; wound through calf nearly closed; wound of entrance discharging thin sanies, with no apparent effort at repair. Ordered moist dressings and perfect rest.

May 28th.—Patient reports a slight bleeding from wound of entrance during the night. He states that it was black blood, inducing the belief that it proceeded from spongy structure of the bone; continue dressings and rest, with elevation of the limb.

29th.—Bled more profusely last night; decidedly arterial; again at daylight this morning, and again at 9. A. M., after experiencing a severe rigour. The hæmorrhage evidently proceeded either from the popliteal, or the larger one of its bifurcations, and is classed as *secondary*, having occurred on the thirteenth day after receipt of injury.

Operation.—Upon incising the parts, the opening was found in the posterior tibial—its upper third. After its isolation, ligatures were applied above and below the bleeding point. The lateral operation, as described by Druit, was the one adopted. There was great delay in reaching the vessel, occasioned by its depth, and the pulpified condition of the soft parts immediately surrounding; the skin and subjacent muscles sound; excision extensive; shock following operation, great; posterior orifice in bone stellated and spicula protruding. Wound was cleansed, its edges approximated and a light wet compress and roller bandage applied.

30th.—No sleep; reäction tardy; suffers from strangury, which was relieved by warm stupes and enemata; limb below knee warmer than before ligation of vessel; temperature still lower than the other limb; applied warm sand bags; ordered quinia and stimulants, and nutritious diet.

31st.—Seized with another chill at eight and a half A. M.; reäction fully established, without high fever; pulse depressed, but regular; severe pain in limb; discharge from wounds thin, dark and offensive; dressed with turpentine; ordered quinia in five grain doses, anodynes and stimulants, with nutritious diet.

June 1st.—Another chill at 11 A. M.; hæmorrhage recurred, very profuse and exhausting; supposed to be caused by extension upwards of the sloughing.

Upon consultation, at 12 M., the femoral artery was ligated at the point where it is covered by the sartorius muscle; limb cold; cleansed wound and applied a flannel roller from toes upwards; use Laberaque's solution. Evening.—Complains of severe pain throughout the entire limb. Anodynes, and continue constitutional treatment.

2nd, 5½ A. M.—Slept at intervals during the night; discharge from wound thin sanies, mingled with clots, very offensive; wound a sloughing mass. At 12 M., twenty-four hours after ligation of femoral, the bleeding recurred. At the earnest request of patient and with the consent of my colleagues, I amputated the thigh in its lower third. The femoral artery required a ligature, although it had been tied above the site of amputation, only twenty-four hours before. He failed to reäct, and died in four hours. Patient retained his intelligence until one hour before death, and after the last bleeding, urged the amputation, otherwise it would not have been performed. Autopsy showed an extensive slough, involving the surrounding tissues, and the popliteal artery, as well as its terminal branches.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

Paris, September, 1866.

Dr. Ozanam has courteously placed, at my command, a memoir he sent in lately, to the Academy of Sciences, upon the therapeutical action of the alkaloids of opium. For ten years, this substance has been made the subject of serious study, the therapeutical effects of its constituent elements, forming the especial object of the researches. As Professor Claude Bernard has published the result of his investigations in an experimental and physiological point of view, Dr. Ozanam decided upon making known the principal features forming the outline of his own observations. According to Dr. Ozanam, opium contains six alkaloids, which deserve particular notice. These principal constituents are morphine, codeine, narcotine, opianine, thebaine and narceine. Besides the above, pseudo-morphine, meconine and propylamine are also met with, but these last named substances, were left aside, as the two first appear to possess no action, and the third has no effect upon the brain. To return to the alkaloids, which build up, so to speak, opium, the place of honor in a description, is naturally assigned to morphine. This element is more abundant than the others alluded to previously. The proof, that its action is general, is furnished by the influence it exerts over the brain, where its power is marked by sleep, a comatose state, and the contraction of the pupils. Its effects upon the medulla, are shown, as well by the nerves of motion, as by those of sensibility. In the first case, weakness of the limbs, especially of the legs, and complete absence of muscular contraction, are remarked, whilst in the second instance, it is impossible to provoke pain, and the skin frequently becomes the seat of an annoying pruriginous sensation. Morphine does not, however;

merely rule over the cerebro-spinal system, but also extends its sway to the vascular nerves, and to the system of the great sympathetic. No doubt can remain as to the reality of this influence, upon the ganglionic system, when certain secretions, such as saliva and the intestinal juices are known to diminish in quantity, whilst others, of which urine affords an example, increase. It is, therefore, evident, that morphine acts upon the secretory functions, either to augment or to lessen the amounts secreted. When morphine is given, general vascular congestion takes place, and no where is this congestion more marked than in the encephalic region. Does not this unusual distension of the blood vessels prove that their contractile power has suffered diminution, or, in other words, is it not clear that this want of energy exhibited by the vascular nerves of motion is to be attributed to the influence of morphine? Here Dr. Ozanam proposes two theories to explain the somnolent state produced by the administration of morphine. May not sleep be due to the slight compression of the cerebral tissue, effected by the dilated and congested state of the vascular element? Or again, congestion indicating an obstacle to the progression of the blood, and consequently suffering an unusually large quantity of carbonic acid to accumulate in the veins of the congested part, does not in this case the accumulation of carbonic acid act the part of an anæsthetic agent as efficiently as though the gas were absorbed in the act of respiration? It would seem, therefore, as the author of the memoir observes, that the answer to the famous question, "cur opium facit dormire," has, at last, been found to be probably due either to the compression of the brain, which compression results from the paralysis of the motor nerves of the blood vessels, under the influence of morphine, or else to the fact, that the carbonic acid accumulated in the blood, by the same substance, produces its usual effect as an anæsthetic agent. From the preceding lines, it follows that morphine enjoys a calming power, as well as that of bringing on an anæsthetic state in the whole nervous system, but more especially in the brain.

Very little is known concerning opianine. Its discoverer, Hiltenberger, and the celebrated Orfila, consider this substance as quite analagous to morphine and, like it, possessed of a stupefying influence over the brain.

Codeine plays different parts, according to the quantity of alkaloid administered. At times it excites, and at others it calms, and even stupefies, this diversity of effects being in proportion with the doses exhibited. If twenty or twenty-five centigrammes be employed, (a grain is equivalent to five centigrammes.) Codeine stupefies like morphine—it acts as an anæsthetical agent, in the same manner as ether and chloroform. Given in a moderate dose, it produces upon the system exactly the same effects which are observed when ether and chloroform are handled. First comes a period of excitement, which is shortly afterwards to be followed by calm. If a small dose be tried, there is no stimulus given, and quiet appears, not ushered in, however, by agitation. Besides this action, which deserves the name of *general*, codeine appears to have an especial affinity—if it be permitted to use the term in this sense—for the cerebellum and the medulla oblongata. That it acts upon the cerebellum, is shown by the retroprogression which has been noticed several times, to attend the administration of this alkaloid. Kunckel, on making post-mortem examinations of animals, of which he had made use to test the effects of codeine, found the cerebellum in an intense state of congestion. The same substance is gratefully remembered by many who have been tormented by fits of coughing and nervous affections of the stomach. The relief experienced from codeine in such cases, is owing to its sedative influence upon those parts which furnish the origin of the pneumogastric nerve. To resume, this alkaloid stupefies when administered in large doses; in moderate quantities it excites, and used in smaller proportions, its action is simply calming, and it is also endowed with a special power over the cerebellum, etc., as above indicated.

Narcotine is diametrically opposed to morphine. It is essentially an agent for obtaining excitement, and enjoys a general action over the whole nervous system. Some writers have contested the opinion, that narcotine always excites; they say, that on the contrary, dissolved in oil, its effect is to calm, that if an acetate be formed, then only is it correct to state that the alkaloid is a stimulant, and that if a solution, in muriatic acid, be made, then it becomes a neutral substance. Dr. Ozanam has employed it, at times, in a rough state of trituration with sugar, and at others, either as an acetate or a muriate, but whatever the form of preparation adopted, the remedy was constantly found to act as a stimulus. The same gentleman has frequently given narcotine in one or two grain doses in cases of great prostration, whether resulting from surgical operations, from paralysis, or from the struggles of agony, and following the exhibition of the above named quantity of the alkaloid, the revival of the pulse was always remarked, as well as the reäppearance of the natural warmth of the body, and the subject of the experiment seemed to receive an additional proportion of vitality. Dr. Ozanam gives the observation of the case of a Physician, Dr. Colombat, who after having had repeated strokes of apoplexy, was troubled with paralysis of all his limbs, and was rapidly sinking into a state of great debility. At this extremity, Dr. Colombat consented to allow Dr. Ozanam to give him one grain of acetate of narcotine daily, during a fortnight. The result was astonishing. The patient's strength returned, and six months later he was still alive, whilst at the moment the acetate was tried, his death was looked upon as inevitable in a very short time. It follows, therefore, that narcotine exercises a general stimulating action upon the brain.

Thebaine is more powerful than narcotine. In moderate doses the latter stimulates and excites, whilst the same quantity of the former substance produces great agitation, and its effects is occasionally pushed so far as to give rise to symptoms of tetanus.—On this account, thebaine has also received the designation of paramorphine, or antidote of morphine. Some months before the presentation of the memoir which forms the subject of these lines, Dr. Ozanam administered thebaine in progressive doses of from three to six centigrammes (it will be remembered that a grain is the equivalent of five centigrammes) to one of his patients who had paralysis of both legs. In this case there supervened great agitation, loss of sleep, and a general feeling of annoyance, accompanied by convulsive jerkings, particularly noticed in the neck and thoracic members, and it became necessary to suspend the remedy. This result excited no surprise, for it confirmed the experiments of Orfila and Magendie, in which dogs who had been inoculated with thebaine presented tetanic rigidity and violent convulsions of the muscles of the thoracic limbs, whilst, on the contrary, there was little or no agitation of the lower extremities. From these researches, the conclusion that must be drawn, is that thebaine exerts a special stimulating influence upon the superior or cortical portion of the medulla.

Narceine offers, as a contrast with the above, a precious means of obtaining calm. In one grain doses it does not produce drowsiness, but all those upon whom the effects of this agent were tested declared, that without having felt sleep, they nevertheless enjoyed perfect quiet. Besides this general action upon the brain which remains within moderate bounds, narceine appeared to possess a particular power over the inferior part of the medulla. During a period of five years, Dr. Ozanam gave this alkaloid in large doses to a patient with paraplegia, subject to alternate and painful symptoms of amendment and relapse. Several of the constituent elements of opium were tried in his case, but without success, until at length recourse was had to narceine, which quickly allayed the suffering hitherto endured. Moreover, the favorable result thus obtained was not merely temporary, and the paralysis, no longer owing its existence to often repeated congestions, gradually diminished. It would appear from what precedes, that the complication offered by the numerous bodies forming opium exists not without design, since each of the substances which enters into its composition seems to have allotted to its charge a special region, and the diversity remarked above permits the exhibition of one or more alkaloids, as the necessities of the case under observation may suggest. Opium, therefore, justly deserves the name of panacea, for it calms and excites at will; and the excessive effects which may result from the employment of one element easily find a moderator in some other substance derived from the same source. Thus the agents for the production of calm and the exertion of a soothing influence are morphine, opium, and narceine. When desired, the opposite result may be had by giving either narcotine or thebaine. These are the two extremes of the action of opium, and the connecting link spanning the interval of separation between these two series of bodies, so essentially different in the effects they produce, is to be found in codeine, which, in a direct ratio with the dose employed, becomes calming, or possesses the property of stimulating. Considering the anatomical distribution of these products, obtained by analytical study, opium may be said to dissect the nervous system, morphine, narcotine, and opianine singling out the cerebrum, codeine appearing destined to throw its influence upon the cerebellum and adjacent parts, thebaine settling down to work upon the superior portions of the medulla, and leaving the inferior extremity to narceine. Dr. Ozanam has been accused of preference for opium in an undecomposed state, thus endeavoring to cast discredit upon the progress of analytical investigations. To this he replies, that in particular cases, such as those related in his memoir, he has given the example of the administration of special alkaloids, but that in those instances where it is desired to obtain a general result from opium, he leans with partiality towards the practice of exhibiting opium in its natural condition, relying upon the checking influence its compound parts have over one another when a particular alkaloid seems to have a tendency to push its effects beyond intended limits.

Dr. Galezowski has recently imagined an instrument for dilating the puncta lachrymalia. The instrument is based upon the theory that the lachrymal flux often proceeds from strictures of the puncta, the sack and duct being perfectly healthy. Instead of making an incision with the knife, and opening the duct and its external orifice, which is the plan of treatment generally followed, M. Galezowski has thought to relieve the annoyance, which this infirmity occasions, by having recourse to a methodical dilatation of the puncta lachrymalia. To obtain this end, he has had made a forceps similar to the one employed in ordinary dressings, save that it is more delicate, that the extremities are bent to an obtuse angle with the handle, and terminated by ends small enough to permit their being both introduced together into the strictured punctum.—When this is done, by means of a double action screw situated between the two blades of the handle, the ends of the instrument are made to recede one from the other, until the degree of dilatation deemed sufficient has been reached. The instrument is kept in position as long as circumstances require, and the dilatation is to be continued until the stricture yields.

During the existence of cholera in our midst, the daily mortality was not made public from motives of prudence. Now, however, that the epidemic may be said to have disappeared, the *Moniteur* gives the following statistics: The greatest number of deaths in twenty-four hours did not exceed one hundred and fifty. A decline in the mortality was observed in the closing days of July, and in August the hospitals presented on an average a record of twenty-three deaths from cholera daily. In the first week of September, the number went down, and only averaged nine. In City practice, since the beginning of this month, there has obtained a mean of twenty-two deaths a day.

Professor Trousseau, so well known to the profession by his writings, and particularly of late years by his "Clinique de l'Hôtel Dieu," has resigned his position as physician of the Hôtel Dieu. He formerly occupied one of the chairs of Clinical Instruction maintained by the Faculty in that hospital, but this year he exchanged that post to become Professor of Therapeutics at the Medical School, and it is at present thought that M. Trousseau intends leaving the school, and retiring completely from the active part he has so long played.

T. L.

PHILADELPHIA, October 13th, 1866.

A line, perhaps, from the Quaker City, might not prove altogether unacceptable to the readers of the Journal. I find that Medical science has remained at about the same status, as when I was last in Philadelphia. Of course the great experience in operative surgery, as in clinical medicine, massed from the bloody granaries of the war, has produced marked results; and Students now receive as dicta, teachings which, when you and I were aspiring candidates to Medical honours, would have been condemned as speculative or visionary.

The Colleges have, I think, all regularly opened—the old University and the Jefferson, I understand, with largely increased classes. The Faculties in these Colleges, have both undergone changes, with the rolling years. Drs. Jackson, (the old man beloved,) Hodge, Wood, and others, have resigned the seat they held so long, and filled so well, and others have taken their places. My old preceptor, Dr. R. A. F. Penrose, from the teaching of a small class in Obstetrics, in an obscure little apartment in Chesnut street, has risen to be Professor of Obstetrics in the University, Dr. Agnew, who, four or five years since, taught practical anatomy (or Surgical Anatomy,) is now Assistant Professor of Surgery in the University. Changes, likewise, have taken place at the Jefferson School. Dr. Meigs has resigned, or withdrawn, and his place is filled by Dr. Wallace. The old " nestor " of Medicine, I might term him, Dr. Dunglison, still holds out, however, and his words of solid wisdom, still ring in the amphitheatre.

Of course, we have been visited, as you know, with that scourge, the cholera, and the City, I am sorry to say, is not clear of it, at this writing. Despite the precautions taken by councils and commissioners, the disease early gained foothold here, and has kept it steadily ever since. A singular and altogether unaccountable vagary, connected with it, has created some talk and discussion in Medical circles. Throughout the Summer, up to the first of October, the highest daily report showed eighteen cases. From that it would sink to one or two, at next report. About the 3rd of October, however, the reports suddenly swelled from four cases to forty in one day! And then 54, then 51, then 39 and so on, until yesterday, when only eight cases were again reported. What occasioned the great increase cannot be satisfactorily established. The cases are scattered all over the City; but could generally be traceable to some excess in diet. The coolest and clearest day of the season, I think, with the wind from the Northwest, showed the largest number of cases. The theory has been here among Medical men, that as soon as the weather was sufficiently cool to arrest animal and vegetable fermentation, the scourge would cease. This theory became known to the people at large, and as we had had several frosts, I imagine many deemed themselves safe from the disease, and gratified their appetites inordinately. In my next, if this is acceptable, I will give the treatment which has here been pursued in cholera cases, and will give more news on Medical points which may interest your readers. W. M. T.

NEW YORK, 1866.

I am tempted to give you an account of some further experience in the use of chloroform internally. A healthy woman of 26 years awoke on the morning of the 2d inst. with symptoms, as she supposed, of cholera. She had pain and cramps at the pit of the stomach, but none in the bowels, followed by large, watery and bilious stools in the course of three-quarters of an hour. I found her after all this much prostrated and greatly alarmed. She had cold feet and hands, a weak and fluttering pulse, cool and moist skin, and still complained of the pain and cramps. I gave her a large teaspoonful of chloroform in a tablespoonful of milk, and enjoined rest. At the expiration of an hour, she had had no further action of the bowels, her limbs were warm and the pain measurably relieved, but she had not slept. I repeated the dose of chloroform, and she slept three hours, awaking quite relieved. At the second action of the bowels afterward, early the next morning, she discharged 24 feet of living tape worm.

On the same day a woman who had miscarried a month previously, was taken with uterine hæmorrhage. For 36 hours the usual appliances had been used without relief, and I found her at the expiration of this period prostrated, exsanguined and agitated, with fear of approaching death. Gave her a teaspoonful of chloroform, the first effects of which greatly increased her alarm, but in half an hour she fell asleep, and slept soundly for three hours, when she awoke, relieved. The hæmorrhage had entirely ceased, and did not return.

A woman aged 30 years had a violent attack of hysteria, with general convulsions, opisthotonos and delirium, resisting for two or three hours many of the remedies usually resorted to in such cases. I gave her two teaspoonfuls of chloroform, with only partial relief, and in half an hour repeated the dose. In half an hour more she was in a sound sleep, which continued five hours, when she awoke entirely relieved, not knowing what had been done for her.

A young man sent me word, late at night, that he had been suddenly seized with disordered bowels, and feared it might prove to be cholera. He was suffering with tormina, tenesmus, and frequent alvine discharges, tinged with blood. Not being able to visit him, I directed a teaspoonful of chloroform, to be followed, after sleeping, by ten grains of calomel. The next day he called to inform me that he was promptly relieved by the chloroform, and had slept soundly.

I will not now trouble you with any more cases, but invite your special attention to the discharge of tape-worm under the operation of chloroform. You will readily perceive that there may be an important significance in this fact.

Your obedient servant, A. P. M., M. D.

LONDON, September, 1866.

TRREATMENT OF URETHRAL STRICTURE—SIMON'S STRAIGHT CATHETERS—SOLLY'S RAILROADS—HOLT'S DILATORS—CHOLERA—SNOW'S THEORY AND THE WATER SUPPLY OF LONDON—THE ATMOGRAPH.

I do not know what particular modes of treatment of stricture of the urethra may be in favour in America, but perhaps you will not object to my giving you a brief account of two or three of the plans adopted by our London Surgeons. I will first refer to the "straight catheters" used by Mr. John Simon. These are silver catheters, of the ordinary sizes, not absolutely straight, but very nearly so; having only a very gentle upward curve at the distal end. In using them, Mr. Simon makes the patient stand up, and often helps to guide the instrument by the finger in the rectum. The advantage of the straight catheter is, that it can be guided with much greater accuracy than one which is much curved, with much less danger of lateral or other deviation; the direction of the force applied being known, and the operator feeling whatever structure the end of his catheter infringes upon, just as if he were using an ordinary silver probe. In inexperienced hands, the smaller numbers of these catheters are dangerous; but so are also the curved ones of the same size, though scarcely to the same extent, since with the straight there seems to be much more possibility of great force being used. On the other hand, the skilled operator can estimate both the amount and direction of the force he is using, far more accurately with the straight catheter, than with the curved one.

Far more useful, however, to the general practitioner, is the instrument I am about to describe, which has been introduced by Mr. Solly, and has received the name of the "Railroad Catheter." Bougie's, made of catgut, smoothed and carefully rounded at the end, are the instruments which, in this method, are first passed into the urethra. A tolerably fine and straight catgut, of considerable length, is taken and held near one extremity, between the finger and thumb, and gradually passed along the urethra, until it meets with some obstruction. This is to be done without any force or hurry, and directly the end of the catgut is felt to be opposed, it should be drawn back a short distance, and then gently pushed on again, at the same time giving it a little twist between the finger and the thumb. This may be repeated many times without success, but by the exercise of a little patience, strictures may be overcome by this method, when no catheter whatever could pass. Sometimes the catgut may be slightly bent at the tip, with advantage before it is introduced. Above all, no force is to be used in attempting to push the catgut through the stricture, as this would almost certainly result in the catgut being turned back on itself, and becoming coiled up on the wrong side of the stricture; the operator perhaps being vainly deluded with the idea that it has passed on into the bladder. Two great advantages of this plan are, that the catgut can be introduced without causing any pain, and without injuing the urethra in the slightest degree. Besides, as I said before, it often succeeds when the smallest catheter fails. The catgut havring been passed, the next step is to run the railroad catheter over it. This consists of a gum-elastic catheter, large enough for the catgut to pass freely through it; the catheter being perforated only at the end, not like an ordinary catheter, at the side, as then it is liable to be doubled up against any obstruction. This is passed over the catgut (a considerable portion of which should be free, out of the urethra) and along the urethra, the free end of the catgut, which has passed out at the upper end of the catheter, being held in the left hand, while the catheter is passed onwards with the right, until the stricture is reached. Then, as the catheter cannot go wrong, it is pushed onwards through the stricture if possible, the catgut being kept stretched by the left hand. Sometimes a No. 4 or No. 6 catheter will pass in this way over a catgut, when a No. 1 would not pass alone. Occasionally, but rarely, the catheter will not pass at once over the catgut, and in this case the catgut should be left in for a day or two, and then the catheter tried again, when it will generally succeed. When the catheter is once in the bladder, it should be fastened and kept in for four or five days, and then replaced by a larger one. This may be done by first passing a silver wire through into the bladder, then withdrawing the old catheter and passing the fresh one over the wire into the bladder. When this second catheter is withdrawn, after a few days the stricture is usually found to be fully dilated, and the patient able to pass a full stream of urine. The dilatation may be afterwards kept up by the occasional passing of an ordinary catheter.

The great recommendations of this mode of treatment are—the safety with which it may be employed by inexperienced practitioners, (no unimportant matter, when we consider how many false passages are made by the ordinary use of the catheter,) and also the rapidity with which the urethra may be dilated to its normal size, as compared with the prolonged and tedious method of gradually introducing successive catheters of larger sizes.

I must refer to yet another method of treatment of stricture, proposed by Mr. Barnard Holt, and practised successfully by him in a large number of cases. He terms it the "immediate treatment of stricture of the urethra," and the instrument by which it is effected he calls the "stricture-dilator." The latter, however, might, with greater propriety, have been called a stricture-splitter; since its *modus operandi* is not gradual dilatation, but forcible tearing, of the urethra at the seat of stricture. The instrument consists of two blades grooved on their opposed surfaces, fixed in a divided handle, so as to resemble an ordinary sound, but tapering towards the extremity. Between the blades is a wire which is welded to their points, and on this wire, which serves as a guide, a tube is quickly passed between the blades, and thus splits through the stricture. Mr. Holt's plan, at first, was to withdraw the dilator and pass an ordinary catheter to draw off the urine, but lately, I believe, he has had the central guide, over which the dilator passes, perforated, so as to act as a catheter. It is found that the retention of a catheter in the urethra after the operation, generally creates irritation, and that the better plan is to leave the urethra alone for a day or two after the operation, then to pass a catheter every other day for a week, and afterwards at longer intervals. Generally, a full sized catheter may be passed at once. The patient should not pass water for a few hours before the operation, in order that the dilator may be able to be more easily introduced, and to move more freely in the bladder, ; and he should, of course, be sent to bed directly after the operation. He need not, in most cases however, be confined to bed more than twenty-four hours. Mr. Holt states that throughout his large experience he has not found this operation attended by any serious consequences, such as hæmorrhage, infiltration of urine, or abscess. The method is, of course, not immediately applicable to cases in which a small catheter even can not be passed; but, in all cases where the instrument can be introduced, the relief is immediate, and he states that where the after treatment has been judicious, the full capacity of the urethra is ever after retained. He also maintains the superiority of the forcible rupture over any cutting operation, on the ground that the diseased structure alone is liable to be torn, while it is impossible, in the same way, to limit an incision made by any sharp instrument.—Theoretically, the tearing process might be objected to; for, as in old strictures, there is commonly much surrounding induration, it might be supposed that the rupture would only be followed by fresh deposit of inflammatory material. Dr. Cruise, however, has examined the urethra with his endoscope, in a case where a circular stricture had been split by Holt's dilator, and the slit had not reünited. Mr. Le Gros Clark, as well as other London surgeons of eminence, still think the plan of gradual dilation the best and safest in the majority of cases, believing that the deposit is slowly absorbed by the pressure.

The cholera appears to be dying out in London, this Autumn, more rapidly than in former epidemics. On previous occasions, it continued with undiminished violence through the month of September, and did not cease its ravages till late in the Winter; but, in the present instance, the brunt of the attack seems to have been over by the end of August. Another fact of importance is, that the disease, in the epidemic form, has been almost entirely limited to the East of London, the cases occuring in other quarters being comparatively few, and scattered, and in some cases evidently imported from the Eastern districts. This fact has called renewed, and by no means undeserved, attention to the question of the conveyance of the cholera poison by water. It is to the late Dr. Snow that we are indebted for having brought this subject in a clear light before the Public. In the epidemics which preceded that of 1854, and particularly that of 1848-'49, the influence of impure water on the spread of the disease, more particularly in its predisposing influence, and of cholera evacuations as the direct means of contagion, both by saturating the atmosphere with its effluvia, and the wells by filtration from the cess-pools, was not altogether ignored, but did not receive the attention it deserved. But, in 1854, Dr. Snow pursued his investigations with indefatigable energy, and certainly brought some very strong facts to support his views. He maintained that the cholera poison is exclusively contained in the intestinal excreta of an infected person. That nothing exhaled from the skin or lungs produced the disorder. That the poison is not a vapour, but a substance capable only of existence in the liquid or dried form.

Considering now only the influence of water in the transit of the poison—for the other points in Snow's theory would require too great space to be impartially discussed here—we must first allow that the presence of cholera evacuations in water which is drunk, does not of necessity cause an attack; for a case is on record of a man having swallowed a quantity of the rice-water evacuations in mistake for something more palatable, and no harm resulting.—Experiments have been made, however, which go to prove that the cholera poison is not in an active state in the fresh evacuations, but only after some days have elapsed, and fermentation has taken place. One or two instances will suffice to show the effect of the water supply upon the prevalence of cholera. In 1849, the Parish of Church suffered a rather higher rate of mortality than the adjoining Parish of S. Saviour's, but, in 1853, while the mortality in S. Saviour's was at the rate of 227 to 100,000 living, that of Christ Church was only 43. Now, S. Saviour's is supplied entirely by the Southwark and Vauxhall Company, and Christ Church chiefly by the Lambeth Company; and between the years 1849 and 1853 the Lambeth Company had moved its works up the river to Thames Ditton, about 23 miles above London, beyond the reach of the tide, while the Southwark and Vauxhall Company still drew its supply from the Thames, almost in the centre of the metropolis. And by the analysis made by Dr. R. D. Thomson, it was shown that whereas the Lambeth Company's water contained organic matter to the extent of 1.43 grs. per gallon, that of the Southwark and Vauxhall Company contained 4.11 grs., or three times as much. And the contrast is even more striking when it is found that, in certain districts where the pipes of each company supply contiguous houses, the inhabitants being exactly similarly situated in all other respects, the mortality in those supplied by the Southwark Company exceeded, by nearly 2,000, the deaths which would have occurred, if cholera had only been as fatal, as in the houses supplied by the Lambeth Company.

The case of Bethlem Hospital, too, is of importance to the subject. In this institution the governors, dissatisfied with the filthy water supplied from the water-works (Lambeth,) before the first epidemic, sunk an artesian well, and not one case of cholera appeared among their inmates, who numbered over 700, during any of the epidemics, though the surrounding neighborhood suffered severely.

I think I mentioned, in a previous paper, how the outbreak at Epping, last Autumn, rather than opposing, supports the view of contagion by water, the well which supplied the drinking water being dilapidated, and receiving the soakings from a cess-pool placed on a higher level.

That water containing organic impurities, in any quantity, will predispose to an attack of cholera, or bring on an attack of diarrhœa, few will deny; but the present question is whether or no it is the actual means of carrying the poison. If it be allowed, as seems probable, that a special decomposition of excreta gives rise to the production of cholera poison, then the outbreak of the disease among the Eastern caravans, where no attention is paid to cleanliness, and where the people, fatigued from long marching, and ill supplied with food, are crowded together with filth and decomposition, all around and among them, admits of easy explanation, and does not require the preëxistence of anything in the shape of a specific cholera cell, as insisted upon by Dr. Snow.

Apart from all theory, however, it would be madness to refuse to listen to the lesson taught more and more forcibly by each succeeding epidemic, of the importance of a supply of pure water. The two water companies, before mentioned, supply the greater part of the South of London. Before 1849, both companies drew their supply from the Thames close by; and the constituents of both suffered in an equally severe manner from cholera. Between 1849 and 1854, one of the companies shifted its works, and supplied comparatively pure water, and the result I have already mentioned. Since 1854, the other company has also obtained its water from Thames Ditton, and the result is that the parts where the epidemic was fiercest in 1854, are now almost free; while the districts in the East, where the cholera has raged so recently, are all supplied with water by the River Lea, a tributary of the Thames, which receives the sewage of several suburban places in the Northeast of London, and the water from which, as supplied by the East London Water Works Company, has been decidedly impure.

The amount supplied, too, has been miserably deficient, and among the poorer quarters it has had ample opportunity to contract impurities in the cistern or water-butt, after it has been supplied. The obvious remedy for all this is a very expensive one, but no less necessary; namely, a constant supply of pure water to every house—always turned on—so as to allow of no filth collecting in cisterns or casks.

I promised some mention of the "Atmograph." This is an apparatus invented by Dr. Sanderson, for observing and recording the respiratory movements, as the sphygmograph does the circulatory. It consists of a disc-shaped bag of thin India rubber, the opposite sides of which have cemented to them two horizontal brass plates. The lower of these plates is glued to a board, and the upper is supported by a horizontal brass lever, against which two small springs act in opposite directions, also keeping the sides of the bag in position. This lever is attached to another, which bears a pencil at its extremity, by which the movements of the lever are traced on a revolving cylinder. A T-shaped tube communicates with the interior of the bag, the patient breathing through the horizontal bar. The changes of tension of the air in the bag, and their velocity, are recorded by the lever on the cylinder. The relative duration and intensity of the respiratory acts are thus registered, and an approximate estimate may be made of the amount of air breathed.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex Damnatur cum nocens Absolvitur."

MEDICAL DIAGNOSIS, WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE. By J. M. DA COSTA, M. D., Lecturer on Clinical Medicine, and Physician to the Pennsylvania Medical Hospital; President of the Pathological Society of Philadelphia, etc. Second Edition Revised. Philadelphia. J. B. Lippincott & Co. 1866. pp. 784.

This work has, in a few months, reached its second edition. The demand for it has been most flattering, not only to the author, but to the Medical Profession of America. It has received the admiration of all its readers, and both the European and American Press are eloquent in its praise. The London Lancet, which, as a rule, sees but few merits in American Medical publications, reviews this work, with commendations that are as just and gratifying as they are marked and unusual. In its disposition to hypercriticism, a few omissions and faults are indicated, but these are certainly of a trifling character, and while they may induce the author to adapt the next edition of his work to meet the extraordinary demands made upon both his comprehensiveness and attention to detail, they do not detract at all from the value of the present issue. This work is eminently practical in character, and must be, to all Physicians, a useful guide and instructive companion. It is earnestly recommended to the attention of every Practitioner.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By FRANK HASTINGS HAMILTON, A.B. A.M. M. D., Professor of the Principles of Surgery, Military Surgery and Hygiene, and of Fractures and Dislocations in Bellevue Hospital Medical College, Surgeon to Bellevue Hospital and to the Charity Hospital, New York. Professor of Military Surgery in the Long Island College Hospital. Author of a Treatise on Military Surgery. Third Edition revised and improved. Illustrated with 294 wood cuts. Philadelphia. 1866. Henry C. Lea.

It is not quite a year, since the second edition of this work was received. The unqualified commendation then bestowed upon it, has, by the demand for the work, been proved to be just and correct. There is no necessity of again repeating what was then written. During the past year. Prof. Hamilton has added materially to the value and interest of the work, and has embodied in it many well written analyses of valuable practical improvements in the art of Surgery. Dr. Covey's description of Bean's interdental splint is published, with the original drawings used in the February issue of this Journal; also a description (with the original plate) of a new instrument for treating ununited fractures, suggested by the Senior Editor of this Journal, and published in the February issue.

All of the recent suggestions for the relief of mechanical injuries, have been efficiently reviewed, and the reader will find that this superior work is a mirror of all that is valuable in modern Surgery.

PRACTICAL THERAPEUTICS. Considered chiefly with reference to the Articles of the Materia Medica. By EDWARD JOHN WARING, F. R. C. S., F. L. S., Surgeon in her Majesty's Navy. From the Second London Edition. Philadelphia. Lindsay & Blakiston. 1866. pp. 815. Bidgood & Riley, Richmond, Va.

No work on this subject, that has appeared, during the few past years, can be more fully recommended to the Student and Physician. Without that compendiousness appertaining to those larger works, in which a minute analysis and history of each article in the Materia Medica is carefully given, this work not only contains all that is actually necessary to the Practitioner, but affords much useful, valuable and novel instruction, in regard to the adaptation which British Physicians in India have made of the most familiar medicines in daily use. The oldest Physician and the most accurate Student will find in it much that has not, and cannot be seen elsewhere, and no one can consult its pages without receiving practical information and judicious counsel.

ANNOUNCEMENT OF THE UNIVERSITY OF NASHVILLE MEDICAL DEPARTMENT—Session 1866-'7.

"The regular course of instruction will begin on the first Monday of November, 1866, and end on the first day of March, 1867. During the last five years our Museum has been visited by more than five hundred physicians, representing nearly all the States in the Union, and most of those in Europe. There is but one opinion—that it is splendid, copious and unique. This last feature it owes to the wonderful artistic genius of Dr. Thos. B. Buchanan, son of our late colleague, Prof. Buchanan. The preparations and illustrations of this young artist have excited the astonishment of those perfectly familiar with all the museums of Europe. Prof. Buchanan's cabinet of diseased bones is a wonderful collection, while the fractures and dislocations, with the action of involved muscles, prepared by Dr. T. B. Buchanan, excites the admiration of all.

"The Faculty have resolved, without regard to expense, to keep this College in a condition to offer the best possible facilities to students for the attainment of a thorough medical education. To this end they have secured the coöperation of the distinguished Professor Joseph Jones, formerly of the Chair of Chemistry in the Medical College of Georgia. Of this gentleman, the Chancellor of the University says:

"'Professor Joseph Jones, M. D., of Augusta, Georgia, has accepted the Chair of Pathology in the Medical Department of the University of Nashville. The many graduates and friends of our University throughout Tennessee and other States cannot but be highly gratified by this announcement, since Professor Jones is known in Europe, no less than in America, as one of the most eminent scientific celebrities of the Union. The son of the distinguished and beloved Georgia divine, Charles C. Jones, D. D., he received a thorough training at Princeton and in Philadelphia.—Before he had taken the degree of doctor of medicine, he was appointed Professor of Chemistry in one of the Savannah Medical Colleges, thence he was transferred to the University of Georgia, at Athens, and soon afterwards to the Medical College of Georgia, at Augusta. Uniformly sustaining the high expectations of his friends, his promotion was rapid indeed. As an educator, he had won a very high rank before he had reached the age of twenty-five.

"'As a writer and original investigator, he has been equally successful, having, although but little more than thirty years of age, furnished valuable papers to the Smithsonian Transactions; a Prize Essay to the American Medical Association; a celebrated Report upon Marls; and very full materials for the medical history of the late war to the United States Sanitary Commission. These papers all bear the impress of most minute and thorough scientific research, and have given their writer a position among *savans* surpassed by no one of his years. Modest, unassuming, high-toned, devout, as well as eloquent and famous, his influence upon students is in every way happy and ennobling. Many distinguished men has the University brought to Nashville, such as Priestly, the elder Lindsley, Troost, Hamilton, and others now living. Our citizens have cause for gratulation that the list is not closed, and that the first step after the prostration by war is one so well-omened for the future prosperity and renown of our venerable seat of learning.'

"But Prof. Jones needs no introduction to American physicians and men of science, being everywhere known as standing among the very few great scientific celebrities of his country.

"The entire Faculty and trustees are full of hope for the future, not doubting that the ancient triumph of the Department is destined to be surpassed in coming years. Our last class justifies this prediction. Under the circumstances, it was a very large one, more than twice as large as we had dared to hope for. It will be seen that the Department never suspended, having nine graduates in 1863, the darkest hour of its existence, and in December, 1864, while the battle of Nashville raged around the city, the lectures continued, and there were at the altars of the College during these terrible days a class, furnishing in the following March, twenty-six graduates. Nor did we ever see a more attentive class than while Fort Negley, near the foot of which stands the College, was vomiting fire and smoke in a manner forcibly to recall Bulwer's description of the last days of Pompeii. A million of armed men have passed and repassed the College without seriously interrupting the even tenor of its way—it had been converted into a hospital, but the lectures went on amid the dead and dying. For two weeks before the battle of Nashville, it was the centre of a vast encampment, and from its roof could be heard the distant strains of 'Dixie,' and 'Who's been here since I've been gone,' from the Confederate bands upon the adjacent heights, still the voice of its ministering priests were not hushed, but in humble cadence mingled with the external uproarious discord. If its vitalities could not be chilled into suspended animation under such circumstances, its friends need scarcely fear anything that can happen to it hereafter. We ask the four thousand especially, who have worshipped at its altars, like the exiled Israelite, amid the sore trials of the times, to let their thoughts occasionally revert to the TEMPLE, and to determine that its fires shall never be extinguished, but amid external gloom shall appear all the brighter, attracting from afar those in search of light for the benefit of themselves and mankind.

"To graduate, the student must previously have attended two full courses of lectures. He must be 21 years of age, have studied medicine under a preceptor three years, including the time spent in attending lectures, and be of good moral character. A ticket from any reputable school counts as a ticket here.

"Boarding in good houses $5 00 a week.

"*Theses.*—In the last announcement we intentionally omitted to say anything about theses. Accordingly, several candidates omitted to write any. The school at Charleston, of high Southern authority, in an announcement of the next session, formally excludes this absurdity. They are of no use, and rob the candidate of precious time when he has not a moment to spare.

" 'Compositions' are well enough for boarding-school misses to give their delighted mammas an airing amid the stars on commencement day, as these 'essays' are read aloud, but a thesis, after all the labour expended upon it, to be pigeonholed and chronologized for post-millenial resurrection, is an absurdity that sensible men ought to discard at once. Hereafter no thesis will be required of the candidate for graduation at this College.

" *Text-Books.*—Every student ought to have a Medical Dictionary, a Dissector, an Anatomy, a Chemistry, and a Physiology. He needs no other books while attending lectures. He has not time to read much. In old times, when there were but few books, and it was the business of the millions to understand what one man had written, it was the duty of the Professor to explain and expound to the class the *texts* of that book. In modern times teachers make text-books, and explain what they have written to their classes, and sell the books to the students. It pays admirably; still, a sensible student could not help thinking that the Text-Book maker ought to have made his book so plain as not to need any explanation.—He would think what he could not do in his closet with his pen, he could scarcely do in the lecture-room with his tongue.

" We say, then, get a Medical Dictionary—one is about as good as another, only medical terms multiply so rapidly that a Medical Dictionary ought not to be more than a year or two old. Hoblyn's is the best.

" Any 'Dissector' you can find in a bookstore—the 'Dublin Dissector' is a good one.

" Wilson's Anatomy is good.

" Dalton's Physiology Prof. Briggs prefers.

" Fown's Chemistry is good, and Prof. Lindsley endorses it.

" You will want more books afterwards, but these are all you want to begin with, and as you progress in your studies you will learn what you need.

" *Directions for Students.*—When the boat or cars arrive at Nashville, take hack, which will bring you and your trunk to the College for fifty cents—there is no necessity for a hotel bill—come right to the College like it was a hotel, enquire for the Janitor, he will show you many boarding-houses."

This remarkable paper is given, almost, entirely as it is printed: a few unimportant details only being omitted; no changes have been made in the phraseology. It is an Announcement which (to use the words of the author, in another connection) is, in its general style, "splendid, copious and unique." If issued without the consent of the Faculty, such a course is most unusual; if known to them, prior to its publication, it is strange, apart from other errors (in judgment and orthography) that one of its members, in a paper emanating from the College, should be so extravagantly and inordinately eulogised. It is impossible to believe that Professor Joseph Jones could have consented to the manner in which his antecedents have been heralded. The Faculty of the innumerable Colleges in Europe and America will learn, with surprise, and perhaps amusement, the criticism made, by a sister Institution, upon their rules and regulations, in regard to the Thesis, and those gentlemen who are coincidently authors and teachers will, at least, enjoy the novelty of the views offered, in connection with the causes, origin, objects and effects of their authorship.

Such a publication is most injurious to any Institution, but will not, it is hoped, impair the reputation and usefulness of this Unisity, which "never suspended," even when "Fort Negley, near the foot of which stands the College, was vomiting fire and smoke, in a manner forcibly to recall Bulwer's description of the last days of Pompeii," or when "it was the center of a vast encampment, and from its roof could be heard the distant strains of 'Dixie' and 'Who's been here since I've been gone.'"

These are, confessedly and familiarly, strong tests of the vitality and tenacity of a Medical University, but an Institution which could bear them even triumphantly, will be unable to bear, more than once, the publication of this indiscriminate attack upon rival Colleges and Professorial authors; this adoption of a policy in regard to length of term that is practically condemned by the prominent Colleges of this country.

MISCELLANEOUS.

"Non Omnes Eadem mirantur Ament que."—Hor.

The following valuable table is taken from Waring's new and most valuable work on Practical Therapeutics.

A glance at this table will show the comparative mortality which has occurred under various modes of treatment, and it will be seen, that though the mortality of cases treated with calomel is much less than those treated by transfusion, stimulants, &c., yet it is much greater than those treated by ice, tartar emetic, and salines. In 376 cases treated by calomel, the percentage, we see, is about 36; but of this number, Mr. Ross observes, are 331 cases treated by Dr. Ayre and Dr. Peacock; if these had been omitted, the percentage would have been 62.9 instead of 36.

A General Synopsis and Treatment in the Mortality of Cholera.

Treatment.	Cases.	Deaths.	Rate per cent.
Venous Injection	90	78	85.7
Stimulants—viz., Brandy, Ammonia, Turpentine, Cajeput Oil	3,055	1,792	58.8
" with emetics of Ipecacuanha	37	25	67
" with Calomel and Opium	356	214	60
" with Ice	68	29	50
Opium	81	47	58
Calomel and Opium	196	112	57.14
Calomel	376	147	36.50
Bloodletting, with Calomel and Opium, and antiphlogistic Medicines	285	168	59
Ipecacuanha	21	12	57
" with stimulants, as above	37	25	67
" with bloodletting and Sulphate of Quinine	161	81	50
" with bloodletting alone	222	104	47
" with moderate warmth	281	98	34.9
Salt with cold water	607	112	20
Tartar Emetic	21	4	19
Ice, with stimulants as above	58	29	50
Ice alone	142	43	30
Dr. Stevens's combination of Salts	88	67	76.3
Greville Street combination with cold water	107	15	14
Miscellaneous	17	8	47.6
Total	6,296	3,210	51

Dr. H. B. Storer, in resigning his position, as attending Surgeon to the New England Hospital for Women, thus writes:

"For certain of the professional ladies, whom I have met, I have personally the highest respect and esteem. Miss Zakrzewska, the beauty and purity of whose life as already published to the world, I have long seen verified, may well challenge comparison in practice with a certain percentage of my own sex; Miss Tyng, now for two years my assistant in private practice, has such natural tastes and inclinations as fit her, more than I should have supposed any woman could have become fitted, for the anxieties, the nervous strain and shocks of the practice of surgery; and there are others not now officially connected with the hospital, whose names I would mention in terms of similar commendation. Such are, however, at the best, but very exceptional cases, and I am driven back to my old belief, the same that is entertained by the mass of mankind, that in claiming this especial work of Medicine, women have mistaken their calling; a belief that, contrary to assumptions that have been made by certain interested parties, I have found to be generally held by ladies of true refinement and delicacy, and by the majority of female patients, no matter what their station in life.

I make these statements deliberately, for they are of public interest. I make them with regret, for to some they will give pain. You yourselves have placed me where I could view the matter in a truer light than might otherwise have been possible. Many things have hitherto conspired to warp my judgment; the opposition and violent denunciations of former associates, the knowledge that to my own personal exertions has been owing much of your pecuniary success, and to my own professional reputation, whatever this may be, very many of the applicants for medical and surgical aid, and above all, my habit of never abandoning an experiment until it has been tried to my full satisfaction. The attainment of that point you have now assisted me in recognising; and in yielding to the irresistible logic of facts, I thank you all for the many marks of confidence I have, up to this moment, received at your hands, and trust that you may find for my post a successor with as much sincere desire to render good service to his profession and to the suffering poor, as I think I may claim to have brought to it."

MERCURIAL COLLODION IN THE REMOVAL OF SYPHILIC PATCHES OF DISCOLORATION.—M. Leclerc states, in the *Presse Medicale Belge*, that a patient of his having tried alkaline, vapour, and sea-baths for the removal of those patches which appear on the skin of syphilitic patients, without effect, he recommended her to apply the following lotion, which removed them in a few days—corrosive sublimate, fifty centigrammes; collodion, fifteen grammes.

I AM TOO POOR TO SUBSCRIBE TO A MEDICAL JOURNAL.—This is a reply that has quite frequently come to us from those to whom we have sent our prospectus. Well, the war has not spared us, and we have witnessed distress enough to make our sympathies as active as need be; we came home penniless, but almost the first thing we spent our money (borrowed at that) for, was a set of medical journals from one to four years old. The strange, but very natural feeling crowded on us that we were too poor to do without medical journals. We were, by the necessities of the war, behind hand in the medical literature of the day; our profession was to be the medium through which we were to get bread, meat and clothes; the community to whom we looked for patronage were entitled to the best professional attention, and there could be no question that we were too poor to do without a medical journal.

We wonder if there is a doctor in the South who will tell the people who patronize him that he is too poor to take a medical journal!—*Southern Jour. of the Med. Sciences.*

ON THE USE OF A SPIDER'S WEB AS A STYPTIC.—On one or two former occasions I have written something on the use of the spider's web as a styptic in cases of excessive hæmorrhage after extracting a tooth. I now wish to add the result of my experience in another case. I do it with the hope and belief that it may be an essential service to some of my professional brethren, and perhaps to some of their patients.—It may be thus serviceable on two accounts. First, it can always be obtained, and everywhere, and sometimes when other more popular remedies cannot so readily be obtained; and second, because in my hands it has proved efficient where everything else has failed.

About a year ago a young man, about eighteen years of age, came to my office to have a lower molar tooth extracted. I examined the tooth, took my forceps and extracted. The operation required rather less force than usual. The tooth came out entire, and clean, and with no laceration of surrounding parts, except the necessary severing of the periosteum. But from the first blood flowed more freely than usual. I directed my patient to rinse his mouth with cold water, which he did considerably longer than the usual time of the flow of blood in such cases, but with no diminution of its flow. I then applied tannin on pledgets of moistened cotton, filling the socket with them. After repeating this application two or three times, the bleeding ceased, and he left. In about three hours after he returned, bleeding as profusely as ever. I then filled the socket from whence the tooth came with cotton saturated with perchloride of iron. This I repeated several times, with a delay of a few minutes between the applications, without any apparent effect. I next applied the persulphate of iron, full strength, in the same manner, and with no better result. Finally, I procured some spider's web, with which I filled the socket, as I had before done with the cotton, when—I need not say that I was gratified to see—the bleeding stopped almost immediately, and there was no more recurrence of it. A. R.—*Dental Cosmos.*

Dressing of New Born Infants.—Dr. W. B. Fletcher, of Indianapolis, Ind., communicates to the Cincinnati *Lancet and Observer*, some remarks on the above subjects, that are worth reproducing. He says:

If there be one custom of time-honored folly which we have continued to this day in the "lying-in-chamber," it is that absurd and cruel system of the first dressing. There is no reason for quoting from the most ancient authors to find absurdity upon this point, when our most recent text-books and lectures give almost the same directions.—But even if they did not, how many physicians ever personally attend to this important point, whereby the comfort of the child and mother are all at stake. In most cases as soon as the child is born and the cord divided, it is tied, and the baby given to an employed nurse, some wise neighbor or friend. The question of "What will she do with it?" may best be solved by watching her. First she huddles it up in an old shawl or other garment. She is careful to cover its head, as though it were a young puppy she would smother, or rid the world of an infant cat. In a few moments some one brings water, soap and towels, and also a heap of old linen and a trunk full of new. The good woman now turns to the blazing fire or the hot stove, that the baby may not take cold, and while the youngster implores with yells and cries, she bakes its tender skin on the side, while she dabbles its head, eyes, mouth and body with a vile solution of frequently very bad soap. After this ceremony has been past, (it matters not whether the child be cleaner than before,) she turns her attention to the cord, upon which she frequently deposits, slyly, some pestiferous saliva. "It's healin'," she says, and now she follows authority. 1st. She cuts or burns a hole in the center of a bit of cloth, through which she draws the cord. 2d. She places a rag upon this. 3d. A rag upon that; and 4th. She puts on a "binder." Now, it is upon this operation she prides herself if she be a hireling, that is the closeness and compactness with which she can pin the binder round the expanding body of the infant. 5th. She puts on a little garment, called a shirt, which is in fact without body, neck, or sleeves, as far as protection goes. 6th. She puts on the "square" with more pins. 7th. She pins on a "waist" with a long skirt. 8th. Another waist with a longer skirt. 9th. A dress. And now the baby is presentable. The doctor sees its all right and goes home. He hears not within an hour the stifled screams of compressed lungs, that with every breath are expanding the chest, and the nurse wisely says it appears "colicky," for which it must be drenched with some decoction of catnip, sling, brandy, laudanum, water and molasses, etc.

The next visit the nurse swears its a good child, only a little "colicky," but she can cure that, and away the doctor goes, where he cannot hear the little one cry, and see it dosed for screaming on account of the "cord" having become a half putrid, drying mass, glued and ulcerating to the tender belly.

Dr. Fletcher recommends the following mode of procedure, as an improvement on the above:

"My baby is first quickly washed by oiling the hand and rubbing the parts to which the secretions have adhered, and then with a soft cloth, soft water, and a trace of Castile soap, and frequently with warm water alone, the infant may be cleaned. Then I begin dressing. 1st. A bit of lint or linen, two inches square, is tied closely upon the end of the cord like a cap. 2d. The square, or diaper, of soft and old material, is put on loosely with a diaper pin. 3d. A fine warm flannel gown, (like a woman's night dress,) with long sleeves, and coming below the feet, is put on, and thus the baby is quickly and comfortably dressed, and placed in its mother's arms, where the temperature of her own body is food and strength for her new-born babe until the milk is secreted.

"Let any physician try this plan, and he will meet with opposition from every old lady in the land. 'Why, doctor, its bowels will burst out when it cries, if you don't pin a binder on!' and a number of similar excuses for not being directed by the physician. But the physician will be rewarded by finding the infants more clean, sleeping more, and eating more than when uncomfortably dressed, and, I believe, less liable to umbilical hernia and ulceration about the cord. I have known children rescued from apparent suffocation by simply unpinning a close binder."—*Medical and Surgical Reporter.*

TERMINATION OF MOTER NERVES IN THE MUSCLES.—The views of Dr. Beale relative to the mode of termination of the nerves in the muscular tissue have been pretty generally accepted in this country. Most British microscopists hold with the King's College Professor in believing that the nerves have no decided termination in the muscles, but that their ultimate fibres unite in forming a network of extreme delicacy. Abroad, however, this view has met with some opposition, and especially from MM. Kuhne and Rouget, the latter of whom has just presented a memoir to the Academy of Sciences upon the above subject. M. Rouget states that the nerve-fibre ends in a sort of terminal *plate* or disc; and in answer to Dr. Beale's denial of such a mode of termination, he writes: "I shall only reply, that all other observers who have devoted themselves to this subject, MM. Krause, Kuhne, Waldeyer, Englemonn, and Letzerich, and still more recently, MM. Conheim and Vulpian, have all admitted the existence of the terminal plate, and its entire independence of any nervous network." M. Rouget laid before the members of the Academy some photographs of microscopic preparations of tissue, which he said demonstrated the following conclusions: (1) The terminal division of the *axis cylinder* of the motor nerve-fibre constitutes by anastomosis and fusion a terminal expansion of finely granular substance identical with that of the terminal filaments of the corpuscles of Pacini, of the ultimate nervous lamina of electric plates of fishes, etc., and in immediate contact with the contractile substance of the primitive bundle. (2) This nervous expansion is traversed in every direction by minute canals, establishing a connection between the numerous nuclei of the *plate*, and communicating probably, on the one hand, with the space intermediate between the sarcolemma and the contractile fibrillæ, and, on the other hand, with the interstice between the matrix of the nervous tube and the medullary layer—an arrangement which is doubtless related to the special action of certain poisonous substances upon the terminal extremity of the moter nerves of animal life. M. Rouget's paper will be found in the *Comtes Rendus*, June 25th.—*Lancet.*

MEDICAL NEWS.

A New Remedy in Gonorrhœa.—In July, 1859, while narrowly observing the effects of oil of erigeron administered in a fearful hæmoptysis, I was led to suspect that it would prove a useful remedy in the treatment of gonorrhœa. Acting upon this presumption, I immediately commenced giving it to a patient then under my care, in whose case all the vaunted specifics had most signally failed. He improved at once, and was speedily cured. Since that date I have prescribed it in about fifty cases, with unvarying success. It arrests the discharge in about 72 hours, and effects a cure in from six to eight days. I do not recommend it as a specific in all cases, but design merely to bring it to the notice of the profession as an exceedingly valuable medicine in this disease. Of course, all scientifical medical practice is based upon the well-known pathological condition of the structures involved, and this is our unerring guide. When, in recent cases, the urethral inflammation is severe, my plan is to precede the remedy with a full dose of some active hydragogue. A formula is: R.—Pulv. sennæ scruples ij; pulv. jalap. scruples j., pulv. aromatici grs. x. m. Add a gill of boiling water and a teaspoonful of sugar, and, when sufficiently cool, agitate, and swallow at a dose. As soon as this operates, give ten drops of the oil on sugar, and three hours later a full dose of spts. ether. nit. in infus. althea, and so on every three hours alternately until the urethral irritation is allayed. Then leave off the latter, and continue the oil until the cure is complete. If the case is not recent, or there is but little urethral irritation, the oil alone is sufficient.

I have used it also in combination with copabia and other articles, and found such preparations to answer a good purpose, but no better than the oil alone.

The oil which I use is reputed to be that of the Erigeron Canadense; but I presume that from the Philadelphicum is equal, if not superior, for this purpose. J. S. P.—*American Jour. Med. Sciences.*

The friends of both the Medical Colleges in Virginia will learn, with pleasure, that the present Session has been commenced with largely increased classes, and that these Institutions have every reason to anticipate a future of most satisfactory efficiency and prosperity. As cholera has entirely disappeared, those students who have been deterred from coming to this city can now do so, with impunity.

THE PRIZE OFFERED BY THE ROYAL ACADEMY OF MADRID.—The Royal Academy of Madrid has, among others, offered the following prize: For the best treatise on the Critical Examination of the Various Methods of Treatment which up to this time have been practised in Penetrating Wounds of the Chest and Abdomen. The first prize is two thousand realen vellon, a gold medal, a special diploma, and the title of Corresponding Member of the Academy.

The treatise must be written in the Spanish language and sent before the 1st of September, 1867, with the name and residence of the author in a sealed packet. A motto should accompany the treatise. It should be addressed, " A la Real Academia de Medicina en Madrid (Espana.)" The treatise obtaining the first and second prizes will be printed at the expense of the Royal Academy, and two hundred and fifty copies given to the authors.

The prizes will be awarded at the public session of the Academy in 1868. (As we understand it, this prize is open to the competition of American as well as other medical men.)

The Spanish title of the treatise will be: " Examen critico de los diferentes tratamientos que se han empleado hasta el dia contra las heridas penetrantes de pecho y de vientre."—*Wiener Med. Presse.*

NEW ANÆSTHETIC.—Dr. B. F. Gilman, introduced as late Surgeon of the U. S. Army, presented several bottles of a new anæsthetic, with a circular describing its properties.

He claimed for it all the advantages of chloroform, ether or nitrous oxide, without danger of producing nausea, vomiting or headache. The agent was a compound of meconic acid, codeia and thein, dissolved in alcohol and formyl.

The remarks of Dr. Gilman and his circular gave rise to considerable discussion. Objection was expressed to the name of "Narcotina," which he applied to this new agent, as being a term already given to one of the active principles of opium. Objection was also made to the following phrases in the circular: Narcotina "is an almost instantaneous cure (?) for headache and neuralgia." "It is free from all danger, and may safely be used by children and adults." Doubt was felt how far the following was absolutely correct: "It has been thoroughly tested in hundreds of cases, and is used in the U. S. Army, in hospitals in New York, Philadelphia and Boston." The question was asked to what extent codeia, thein and such agents would be vaporized and enter the lungs, by inhaling their solutions, poured on linen or sponge.

On motion, the subject was referred to a committee, consisting of Drs. Bogre, Bevan, Lyman, of Cook County Hospital, and Holmes, with the request that the committee should make use of this anæsthetic in such patients as they might find convenient, and report at some future meeting regarding its efficacy.

TREATMENT OF ASTHMA BY NITRIC ACID.—Having had several cases of asthma to treat, and having had the good fortune to cure at least two of them by the use of nitric acid, I have thought that I would give the profession the advantage—in order that others might repeat the experiment. It is well-known that the fumes of nitrate of potash will relieve a fit of asthma. It is also known that nitric acid has been extolled by the profession at large, as almost a specific in pertussis. It is also known that both of these diseases are spasmodic.

Now, if the nitrous vapour relieve in one case and the nitric acid in the other, why should not these be used in the same disease?

The manner of giving it is to commence with nitric acid iij gtt. three times a day in a glass full of water, and increase the dose one drop every week until the patient has taken six drops; when he should desist for a week, and again commence the minimum dose. It is an experiment which can certainly do no asthmatic patient harm, and might result in his recovery. I have two patients at this time who are using the medicine, and certainly while they are taking it they have not had an attack.—*Galveston Medical Journal.*

A CASE OF MENSTRUATION BY A CHILD FIVE YEARS OLD.—Addie E. Tinsley, daughter of G. W. Tinsley, of Minneapolis, Minn. Her parents are healthy people. From her birth, until she was four and a half years old, she was never sick. At this time she was feverish and somewhat nervous for a few days, and then menstruated as a girl at sixteen years of age. This she continued to do every month until last July, when I was called to see her. Her nervous system was much affected during the period of menstruation; during the remainder of the time she appeared quite well. She had strabismus when sick.

I gave hyd- cum creta and rhei powders, and corrected the secretions and a slight constipation; then gave, two or three times each day, a small quantity of infusion of humulus. For the past year she has been perfectly well, and no signs of menstruation. The organs are normal. She is now six years of age.—*Chicago Med. Journal.*

EDITORIAL.

"Nullius Addictus Jurare in Verba Magistri."—Hor.

One more number completes the second volume and first year of this Journal. The period has, therefore, arrived, when, according to the regularly published notice, it is expected that all who desire to discontinue their subscriptions, will give the proper and necessary information. So far from desiring that this period should pass by, unobserved by subscribers, it is intended that special attention should be directed to it, in order that the Editors may be enabled, not only to make appropriate business arrangements for the commencement of a new year, but that, by the number of subscriptions withdrawn, some criterion may be formed, as to the confidence or satisfaction induced, by the past management of this Work.

In the February issue, the policy which would guide the Editors of this Journal was briefly but distinctly defined. A large and immediate accession to the subscription list gave evidence that such a policy received the confidence of the Profession, and would secure its support; this support has been steadily increasing, and the Journal, at the present time, has a subscription list which, even in times of peace and pecuniary prosperity, has been accepted as a sufficient test of a standard Medical Periodical.

The advertising columns of the Journal have been not only gradually but consecutively enlarged, and are now liberally and promptly sustained. No Journal published in America has, during the past year, been as fortunate in this last connection, and the means derived from this source have been freely expended in illustrative plates, in enlarging the work one-fourth more than its original size, and in establishing a reliable and permanent system of foreign correspondence. The fact that this Work enjoys the largest advertising support, of American Medical Periodicals, is mentioned in no spirit of despicable boasting, but as a business fact which those subscribers who do not see such Periodicals are unable to otherwise ascertain. It is claimed to be no breach of propriety or courtesy to give to the supporters of a work, that full information in regard to its business success, which, it would be, in any other manner, impracticable for them to obtain. While, therefore, there is wished, for all Medical Periodicals, an abundant measure of success, it is deemed proper, on this occasion, to indicate those facts which, in their operation, have contributed to sustain this Journal and to form a basis for its future and further development.

The policy originally adopted has been faithfully observed, and, on no occasion, has there been a violation of the pledge, that "nothing of a personal, political or controversial character will be published in these pages."

Many friends have suggested the imprudence and injudiciousness of unwelcomely criticising corporate Institutions and authors of established reputation, etc. Were the purposes of a Journal merely to subserve the vulgar and contemptible object of popularity, criticism would, of course, be ignored, and, in the place of it, there would be adopted that facile system of indiscriminate eulogy and venal praise which, perhaps, secures, for a time, the ignoble result desired. It is held, however, that criticism, which is intended to be just and impartial, and which is couched in language courteous and devoid of personality, is not only eminently proper, but that it is one of the highest and most important duties imposed upon the Journalist. The greater comparative advantages which spring from a constantly and rapidly increasing library, and which are also to be found in enlarged sources of information, voluntarily tendered or laboriously obtained, ought, reasonably, to enable an Editor to form opinions which, were he deprived of these facilities, would be impracticable, if not impossible. When these opinions are reliable and correct, they are but the legitimate result of well used advantages; when they are unreliable, it is but an evidence that such advantages are committed to those unable to properly use them or capable of prostituting them to the basest purposes. Whatever be the result, however, the decided, and not ambiguous, expression of opinion is the manifest duty of an Editor; it is one of his highest duties, and he is unquestionably derelict, if he fails to discharge it faithfully. Such criticism is preëminently the most difficult, the most unwelcome and most uncongenial of Editorial obligations. In the discharge of no literary work is the storehouse of information so severely taxed, and the formation of incorrect opinions so severely exposed; enemies are created and friends lost; nothing can be gained, and much is frequently to be sacrificed; authors are incensed, and the friends of Institutions irritated, etc. It is not surprising that such labours are so frequently avoided; that it is almost impossible to induce medical friends to review well established publications, or to become actually responsible for long entertained convictions, in regard to the vices and defects of prominent or formidable Institutions. These unwelcome, unprofitable and distasteful duties are, however, justly imposed upon all Editors, who should be severely censured and condemned, if the discharge of such duties is either avoided or evaded. No Journal is worthy of respect or confidence that shuns this unwelcome but important duty.

It may be said that these are but axioms and self-evident truths. This is not denied, but in the ethics of Medical literature, as in those of philosophy, it is sometimes wholesome and appropriate to draw occasional attention to admitted facts. In addition to this reason, however, it is desired to make an application of what has been written. The Editors of this Journal have, during the past year, in the discharge of their admitted duties, endeavoured to review many subjects, when such efforts were unwelcome, uncongenial and distasteful; that they should have escaped the inevitable results of such a course is not to be expected, and was certainly not anticipated; they are content, however, to abide the result, not only from the conviction that the course adopted has been in a constant effort to advocate the truth, and to subserve the highest aspirations of the Profession, but because, from very many of its best members have come words of outspoken approval and gratifying encouragement.

Whatever the future course of this Journal may be, current topics of interest and importance will determine. In the past year, there has been an earnest effort, not only to courteously indicate those errors, vices and deficiencies that inevitably create an injury to Medical Science, but a desire to impress upon all Physicians, who respect themselves and their Profession, the necessity of securing for their Profession, by individual action, increased development and greater efficiency.

Those who respect such a basis, in the management of a Journal will, it is hoped, use their individual influence, in increasing the liberal support which has already been extended to this Work.

To those who entertain other opinions, and a different estimate of Professional obligations, the Editors wish to acknowledge, with appreciation, the support that has been extended, and to wish for them, in their relations with other Journals, that entire satisfaction which they have failed to derive from this Publication.

By reference to another page, it will be seen that there is a large accumulation of valuable manuscript, from distinguished and well known writers. Through such influences, the material enlargement of the eclectic department, the extended area of foreign correspondence and the prompt dissemination of novel and miscellaneous articles of interest, the Editors hope to make this Journal worthy of increased confidence and support.

It be may recollected, that in an early number of this Work, the determination to decline publishing the Essay on Ozone was briefly announced, it being stated that the subject did not interest many of the Profession, and that the necessary space could be more acceptably devoted to articles of more general value. Subsequently to this announcement, repeated requests, oral and by letter, were made to publish the Essay mentioned. In accordance with these requests, the desired publication was commenced. It was not anticipated, that the Essay on Diphtheria would, at this time, appear in the Journal, but when the Essay had secured the favourable notice of the Georgia Medical Association, there was made, by the Publication Committee, of that Body, an agreement that it should be here published, and a certain number of copies, in pamphlet form, be prepared for its members. It was by this singular and unusual combination of circumstances, that both Essays have appeared coïncidently, and that so much of the Journal has been unwelcomely appropriated. It has been a source of pain and regret to the Senior Editor, that his own articles should have occupied so many of the Journal pages, and it is, with great satisfaction, he states, that both Essays will be completed in the December number, the space thus appropriated being devoted to articles of greater interest and value.

NOTICES.

☞ The Editors of this Journal wish it understood, that they do not desire the subscription of any one who is unwilling to observe, honourably and in good faith, the "terms" to which he subscribes. It is to them far preferable to receive five dollars, at the period of subscription, or within the limits of time specified on the cover of the Journal, than to wait for the increased amount which subsequently becomes due, and in the meanwhile to be compelled to originate means, for making cash purchases of materials, that are to be furnished, as an accommodation to the subscriber. If any one prefers paying one or two dollars additional for the accommodation extended to him, it is the result of his own choice, but it is certainly not in accordance with the preference of the Editors. After the election has, however, been made by the subscriber, and private resources have, for his benefit, been onerously taxed, the refusal to comply with a contract, to which he has voluntarily made himself a party, is a breach of faith, entailing (in the aggregate) serious injury to those whose confidence has thus been betrayed. If, therefore, any one is unable to pay five dollars within the period specified, or is unwilling to pay subsequently the additional amount necessary for his accommodation, it is requested that he will abstain from subscribing. The Editors appreciate and acknowledge the prompt payment that has been made of those bills, in which there has been charged the additional amount necessary for the accommodation of the subscriber.

☞ The February, June, and October issues of this Journal being entirely exhausted, the Editors will pay 50 cents for every copy sent to Locked Box 32, Richmond, Va.

☞ Messrs. Randolph & English, of Richmond, Va., will bind this Journal neatly and economically, charging, according to the style desired, from seventy-five cents to two dollars and a half per volume.—The Index, for the two volumes, will be issued in December.

☞ This Journal is published as a Monthly octavo of ninety-six pages.

The Editors offer to pay, at the highest Journal rates, for ARTICLES, ESSAYS, CORRESPONDENCE and REVIEWS OF RECENT WORKS.

The terms of this Journal have been changed; see notice on the cover.

☞ NOTICES TO SUBSCRIBERS, ADVERTISERS, CONTRIBUTORS AND CORRESPONDENTS.

Those once ordering the Journal will each year be considered as subscribers, and the terms of this Journal adopted in regard to them. An order for discontinuing the Journal should be sent at least two months in advance. As is usual, no subscription or advertisement will be discontinued until arrears are paid.

The Publishers assume the risks in regard to all amounts sent by mail, if the packages or letters are registered. When practicable, all sums to be so sent should be deposited with the Postmaster, and the "money order," obtained from him, transmitted.

Receipts for all amounts transmitted, will be sent in the Journal, for the succeeding month.

It is desired to obtain for this Journal one Agent in every City and Town.

To each Agent there will be allowed twenty per cent. of the amount due for each subscription or advertisement.

For the accommodation of the Profession, there will be furnished, with this Journal, one or more American Journals, including the reprint of the London Lancet, at twenty per cent. less than the aggregate cost of the additional Journals desired.

All communications sent by mail should be directed to Dr. E. S. Gaillard, Locked-Box 32, Richmond, Va. Those to be delivered personally, should be left at his office, 404 Franklin Street, between Fourth and Fifth Streets.

European packages, sent through Trubner & Co., 60 Paternoster Row, London, or J. B. Baillière et Fils, Rue Hauterfeuille, Paris, will be safely forwarded.

It is expected that all expenses will be paid on packages, foreign and domestic, sent to this Journal.

All contributions or papers, intended for insertion in the next Number of the Journal, should be received by the middle of the month preceding.

Contributions for publication must bear the signature of the writer, and must be communicated to this Journal exclusively.

Original articles should be written on one side only of each sheet, and the manuscript should be, by the sign (¶), divided into paragraphs.

Contributors can have forwarded to them, at a small expense, one hundred or more copies of their articles, in pamphlet form, provided the order to this effect be received before the period of publication.

The Journal will be sent a second time, when not received one month after the usual period of its appearance.

Rejected manuscript will be returned, if desired, by mail or Express, at the expense of the writer.

Each subscriber will give at length his name, State, County and Post Office.

MATRIMONIAL.

Married, September 13th, 1866, at the residence of the bride's father, by the Rev. Z. Grenell, Jr., assisted by Rev. C. H. Still, D. D., **ROBERT LOUGHRAN**, M. D., late Surgeon and Brvt. Lieut. Col. U. S. V., and **MARY** L. eldest daughter of E. W. Budington, Esq., all of Kingston, N. Y.

OBITUARY.

The death of Dr. R. W. **GIBBES**, of Columbia, S. C., is announced as having taken place in that City on the 15th inst. Dr. **GIBBES** was born in Columbia on the 8th of July, 1809, and graduated from South Carolina College in 1827. He studied medicine, married a daughter of James S. Guignard, and settled in his native City, where he lived a life of usefulness for nearly forty years. He was twice Mayor; and at one time acted as assistant professor of chemistry at his own *alma mater* with such success that he was offered a professorship, which he declined. His tastes and habits were literary and scientific, and he contributed largely to the medical and scientific journals of the country. His name is honourably mentioned by Humboldt in his "Kosmos," and by Audubon in his Ornithology. The Smithsonian Institute tendered him the publication of his plates on paleontology and fossil remains at the cost of the Institute. He was also the author and compiler of several volumes of the Documentary History of South Carolina. He was eminently public spirited; and to escape heavy loss, it became necessary for him to become the publisher of *The Columbia South Carolinian*, which he edited for several years. He was, during the late war, Surgeon General of the State of South Carolina, and filled that position with fidelity and efficiency. He lost severely by the burning of Columbia—his fine mansion, with its valuable collections of paintings, fossil remains, and geological specimens, falling a prey to the flames. He leaves a numerous family of sons, daughters and grandchildren.

BOOKS AND JOURNALS RECEIVED.

Asiatic Cholera. By E. Whitney, M. D., and A. B. Whitney, A.M., M. D., late Physician and Surgeon to Diseases in the North-Western Dispensary, Visiting Physician, etc. From the Publisher. M. W. Dodd, 506 Broadway, New York. 1866.

Manual of Auscultation and Percussion. By M. Barth and Henri Roger. Translated from the Sixth French Edition. Lindsay & Blakiston. Philadelphia. From the Publishers. 1866.

Elements of Medical Chemistry. By B. Howard Rand, M. D., Prof. of Chemistry in Jefferson Medical College. T. Ellwood Zell & Co., 17 and 19, South Sixth Street. From the Publishers. Philadelphia. 1867.

Asiatic Cholera. By F. A. Burrall, M. D. Wm. Wood & Co., 61 Walker Street. From the Publishers. New York.

Practice of Medicine. By George B. Wood, M. D., L.L.D. Sixth Edition, in two volumes. J. B. Lippincott & Co., 715 and 717, Market Street, Philadelphia. From the Publishers.

Practical Therapeutics. By Edward John Waring, F. R. C. S., F. L. S,, Surgeon in Her Majesty's Indian Army. From the Publishers. Lindsay & Blakiston. Philadelphia. 1866.

Orthopedics; A Systematic Treatise upon the Prevention and Correction of Deformities. By David Prince, M. D. Lindsay & Blakiston. Philadelphia. 1866. From the Publishers.

A Practical Treatise on the Physical Exploration of the Chest, and the Diagnosis of Diseases Affecting the Respiratory Organs. By Austin Flint, M. D. Philadelphia. Henry C. Lea. 1866. From the Publisher.

A Handy Book of Ophthalmic Surgery for the use of Practitioners. By John Z. Lawrence, F. R . C. S., and Robert C. Moon, House Surgeon, to the Ophthalmic Hospital, Southwark. Henry C. Lea. Philadelphia. 1866. 8vo., pp. 192. From the Publisher.

The Science and Practice of Medicine. By Wm. Aitken, M. D., Edinburgh. In two Volumes. Lindsay & Blakiston. 1866.

Prospectus of the Second Annual Course of Instruction in the St. Louis College of Pharmacy, St. Louis, Mo.

Glycogenic Function of the Liver. By Howard Townsend, M. D., Albany Medical College, Albany, New York. From the Author.

Announcement of the University of New York, with Catalogue for 1866-'67.

The following Exchanges are regularly received: The Atlanta Medical and Surgical Journal; Boston Medical and Surgical Journal; Braithwaite's Retrospect; Buffalo Medical and Surgical Journal; Chicago Medical Journal; Chicago Medical Examiner; Cincinnati Lancet and Observer; Druggist's Circular and Chemical Gazette; Galveston Medical Journal; Journal of Applied Chemistry; London Lancet—Original and Reprint; New York Medical Record; Nashville Journal of Medicine and Surgery; New Orleans Medical Journal; New Orleans Medical Record; New York Medical Journal; Pacific Medical and Surgical Journal; St. Louis Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; Southern Journal of the Medical Sciences; Southern Medical and Surgical Journal; The American Journal of Pharmacy; The American Journal of the Medical Sciences; Dental Cosmos; The Detroit Review; Philadelphia Reporter; Medical and Surgical Monthly; The St. Louis Medical Reporter; Le Mouvement Medical, Paris; Journal de Medecine Mentale, Paris; Medical Press and Circular, Dublin; Revue de Therapeutique Medico Chirurgicale, Paris; Revue Medicale, Paris; Littell's Living Age; The Farmer; Cincinnati Journal of Medicine; Canada Medical Journal; London Punch; Memphis Medical and Surgical Monthly; Journal of Materia Medica; The Ophthalmic Review, London.

LIST OF ACCEPTED ARTICLES.

Four Articles by Prof. Samuel Henry Dickson, Jefferson Medical College, Philadelphia.

Mechanical Apparatus in Resections of the Humerus. By Professor Samuel Logan, Medical College of Virginia.

Hygiene. By Prof. J. Randolph Page, Louisiana Military Academy.

Pneumonia. By M. K. Starke, M. D., Petersburg, Va.

Typhus and Typhoid Fever. By M. W. Gaither, M. D., Charlotte, N. C.

The Influence of Climate on the Origin and Development of Pulmonary Tubercle. By Thos. Pollard, M. D., Richmond, Va.

Diphtheria, [with plate.] By J. Herbert Claiborne, M. D., Petersburg, Va.

Case of Lithotomy. By R L. Madison, M. D., Staunton, Va.

Superfœtation. By J. W. Moorman, M. D., Hardinsburg, Ky.

Night-Blindness in the Confederate Army. By Robert J. Hicks, M. D., Williamsburg, N. C.

New Method of Preparing the Sulphate and the Iodide of Manganese. By A. J. Semmes, M. D., Charity Hospital, New Orleans, La.

Wound of Gen'l. J. Kirby Smith. By C. R. Harris, M. D., Staunton, Va.

Use of Arsenic in the Treatment of Hospital Gangrene. By M. H. Houston, M. D., Richmond, Va.

Practical Observations on the Black Alder. By S. Somerville Conrad, M. D., Alexandria, Va.

Ununited Fracture. By James Bolton, M. D., Richmond, Va.

Aneurism of the Femoral Artery. By A. F. Schulze, M. D., South Carolina.

Stricture of the Urethra. By W. H. Philpot, Talboton, Ga.

Treatment of Bone with Denuded Periosteum. By Professor Alden March, M. D., Albany, N. Y.

The use of the Thermometer in Disease. By Prof. Frank Donaldson, Baltimore, Maryland.

Periostitis. By Isaac Branch, M. D., Abbeville, C. H., S. C.

Homœopathy. By Prof. R. McSherry. Baltimore, Md.

Case of Monstrosity. By W. J. Mitchel, M. D.

Conservative Surgery in Compound Fractures. By J. Z. Offutt, M. D.. Harrisonburg, Va.

Papier Mache Splint. By W. J. Holt, M. D.

Paracentesis Thoracis. By W. H. Triplett, M, D,, Woodstock, Va.

Apparatus for Anchylosis of the Knee-Joint. By John H. Britts, M. D.; used with great efficiency in Confederate Hospitals.

Quinine in Ill-conditioned Ulcers. By J. H. Straith, M. D., Adjunct Professor of Materia Medica, Baltimore, Md.

Muriate of Ammonia in Diphtheria. By Wm. M. Fuqua, M. D., Appomattox, Va.

Retroversio Uteri. By C. W. Nicholson, M. D., Southampton, Va.

Clinical Cases. By J. M. Holloway, M. D., Prof. of Physiology University of Louisville, Ky.

Typhoid Fever. By L. N. Mayo, M. D., Buchanan, Va.

Clinical Case. By J. C. Mobley, M. D., Hernando, Miss.

Anomalous Results of Resection of the Medium Nerve. By W. J. Holt, M. D

Cases of Lothotomy [with plate.) By Jas. W. Smith, M. D., Petersburg, Va.

Surgical Cases. By Dr. Le Grand Capers, Louisville, Ky.

Congestive Varieties of the Fevers of the South and West. By N. Snead, M. D., Washington Co., Va.

Articles from Prof. John C. Dalton, Jr., New York; Prof. Geo. Shattuck, Boston, Mass.; Prof. Howard Townsend, Albany, New York; Prof. Zina Pitcher, Detroit, Michigan; Prof. J. Chisolm, Charleston, S. C.; Dr. A. J. Semmes, Charity Hospital, New Orleans, La.; Dr. F. Peyre Porcher, Charleston, S. C., and other distinguished gentlemen, are expected.

Many of these papers are short, and will soon be published. A portion of them are very long, and have been retained for several months. Much manuscript has been neglected, because the writers have desired their names withheld, or have failed to send them. Articles of value have been refused, because they are inappropriate in a work of this kind, or because they could only injure the reputation of the writers. This has not infrequently been the case with Physicians of experience and established reputation. Of course much has been received and read that could not be published with advantage to any one; articles entirely without value. Contributors are particularly desired to prepare their manuscript briefly, legibly, neatly and by paragraphs; and on no occasion to write on both sides of a sheet.

The present supply of manuscript, though large, will soon be exhausted and the members of the Profession are requested to send forward their contributions, that they may be carefully examined and arranged for publication. Short and practical papers preferred.

☞ The following gentlemen are authorized to act as agents for the Journal:

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The Richmond Medical Journal.

Vol. II. December, 1866. No. 6.

ORIGINAL COMMUNICATIONS.

"Qui Docet Discit."

DISEASE: ITS CHARACTER AND TENDENCY. By SAMUEL HENRY DICKSON, M. D., LL. D., Professor of the Theory and Practice of Medicine, in the Jefferson Medical College, Philadelphia, Pa.

The discussion of the nature, origin and cause of diseases, has become emphatically practical. In the progress of scientific research, our Profession has proved itself unwilling to trust any longer to absolute empiricism in therapeutics, and we feel ourselves compelled to follow some definite methods of logical reasoning, in explanation of the various modes of treatment, suggested for the vast variety of maladies which fall under our observation and care.

We must decide, each for himself, at the outset of our career, what course we shall pursue. If disease be merely an exaggeration and intensification of health; if fever consist merely in augmentation of vital heat, as Parkes and Ringer seem to maintain, and Aitken seems to admit; if inflammation be mere phlogosis; if all irritation, with its vast diversity of phenomena, be, as Broussais would have it, mere excitement of normal irritability, then following Broussais, we shall be content with subtracting from its pabulum; with abating the inordinate vis vitæ, absolute diet and leeches and gum-water will constitute our therapeutic arsenal. If, with Brown and Todd, and Chambers, we look upon it as essentially asthenic, as consisting in abatement of vital power, on the other hand, we shall trust for the renewal of life in stimulants, cordials and nutritious food and drinks. If we regard it as an effort of a special restorative, or protective agent—a vis medicatrix—"an inherent curative power," we shall be careful how we interfere with it; we shall be content with the most patent expectancy, and institute no measures, unless in subserviency and correspondence with the movements of nature. We shall further endeavour to discriminate between the modes in which this great power is presumed to operate; whether by reäction against sedative or depressing agencies, or by the various processes of elimination, through which material causes that annoy, disturb and derange the animal structures and functions, are thrown off.

We shall deeply ponder the question as to the tendencies of disease. Are they in their character injurious or beneficial? It may seem strange, that such a question should be entertained, but we cannot escape its discussion. Diseases do not all terminate in death or permanent lesion of any part. When they do, we must examine why it so happens. The orthodox teaching of the day is certainly favourable to the view that ordinary attacks, at least, are to be considered as "tending to recovery."* A phrase so paradoxical, so palpably contradictory, that I would not even venture to quote it, if I did not find it sanctioned by very high modern authorities. It seems to me, on the other hand, almost self-evident that the converse of the proposition is true, and that the slightest ailment, by which health is disordered, essentially tends to evil. If no permanent injury is inflicted, it is because the force of ordinary action, and the current of habit have been too strong to be obstructed or turned aside by the obstacle. There are two tendencies brought into direct opposition, the natures of whose influence are in positive contrast: the tendency to the normal movement, the function for which each organ of the body is constructed, for which alone indeed it is fitted, and for which it can substitute no other, except in a transient way; and on the other hand, the tendency of every abnormal or morbid impression to hinder or prevent such movement or function. This is merely a *dynamic* view of the relations of the two, but the contrast is even stronger and more palpable when we examine them *statically*. The materials of which the organs are built, as in all human machines, are either fit or unfit for their purposes. If the latter, the mechanism will either act irregularly and improperly or cease to act. Thus, if sufficient food be not supplied for the nourishment of the body, it will emaciate and wear away; if improper or deleterious articles be introduced, the structures, the organism cannot be repaired or renewed, but will be disintegrated. The degree and extent to which these results will be carried, will depend upon the degree and force of the impression made, and of the capacity for resistance, which it meets with in the dynamic mode of disturbance, and in the static, upon the rapidity of abstraction of supply, or upon the mischievous quality of the material introduced into the composition of the fluids and structure of the organs interfered with.

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* See No. 3, of this Journal. Vol. I., page 243. "Diseases have a natural tendency to recovery."

In the world of dead matter, a body put in motion has a tendency to continue that motion, and it will move in a given direction, until it is forcibly stopped by some impediment. The effects of its motion will depend upon its impetus, and the resistance made to its progress by the medium against or through which it is projected. A cannon-ball or shell will crush and tear, and destroy; a sphere of wood will overturn and indent; a roll of cotton, or wool or pith, will fall harmless against an ordinary impediment. But it is clear that the tendency in each of these examples is the same.

As to the resistance offered by the living organism, we understand well enough that as a general rule, it is in proportion to the previous vigour inherent in it. All our hygienic maxims are founded upon this belief; it is confirmed by all our bills of mortality, all our tables of statistics. We have become sadly aware, however, that as there is no density of substance, no panoply of armour that can stop or turn aside a heavy solid-shot within a certain distance, so there is no perfection of health which can escape the overpowering influence of some known poisons, and of many unknown causes of disease. Beyond the extreme cases of slight familiar ailments on the one hand, which do not seem to interfere with a protracted longevity, and the choleraic or typhic or hydrocyanic poison on the other, which ends our life in a second, or an hour, or a day, there are all imaginable grades of impression, and of endurance or struggle. So general indeed, nay, so nearly universal are these conditions of protracted endurance or tenacious struggle, that it is not an unreasonable suggestion, on the part of a recent writer, that we have been in error in taking for granted, that health is the normal and disease the abnormal state of animal existence, or of the human animal at least. We know not much of savage life, but we suppose that the ultimate effect of the perpetual contest with difficulties must be the weeding out of all the inferior order of forms, and the less elastic range of functional capacity. (Darwin's Struggle for Existence.) But where we consider the obvious and inevitable influences of domestication, and what we call civilization, we find a mingling of inevitable evil with abundant and admirable benefits, and we cannot help arriving at the conclusion, that as we reject the counteractive advantages of the sifting and cutting off presented in the original state, we shall find civilization to have become in truth an enlarged study of "Asthenology, or the art of poisoning feeble life." It is rare, indeed, to meet with an example of perfect health. In spite of all that we have done or can do, in our best populations, and in communities most remarkable for salubrity, our bills of mortality show a frightful extinction of infant life. Scarcely half the number born, reaching the end of the second lustrum, and those of us who attain the age of fifty, not more than a moiety of the years due to us, according to the calculation of Flourens, on looking around us for our school-fellows and contemporaries find them, alas! sadly reduced in number—"rari nantes in gurgite vasto."

I have made these preliminary remarks, in place of offering, as is usually done at the commencement of a course of the theory and practice of Medicine, definitions, imperfect and inconclusive of disease in the abstract. Our business is, and always shall be, with diseases, in the concrete and in the plural number. Their name, indeed, is legion. They are effects of causes, and as these causes are appallingly numerous, indefinitely various, and often highly complicated, so must the maladies which they produce be relevantly numerous, varied and complicated. When we have succeeded in defining life and health, we shall define, clearly, their contrasts and correlatives, disease and death. Where life has been and is extinguished, there is death. Where there is suffering, whatever be its character, mental or physical, negative or positive, from incapacity or tension, from imbecility or violence or whatever mode of change or aberration, there is disease—the terms being, indeed, synonyms. At this stage of our inquiries, I would, however, fix attention, especially on the relevancy of all the several forms which diseases assume to their essential and producing causes; if these are all essentially evil, evil in their tendency and in their effects, I shall claim it as logically established that all diseases are essentially evil in tendency and results, however feeble the tendency may be in certain cases, and however slight and inappreciable the results in many.

It is palpably and undeniably clear in regard to what are called the "specific causes of diseases," that they are in their own nature injurious; that they exhibit a particular affinity for certain tissues and organs, with whose properties and functional capacities they hold an unintelligible relation, or that they inquinate one or more of the fluids in a peculiar manner; and that each of them has an individuality of impression which separates and distinguishes its influence from every other. This, I say, is palpably clear as to what we call poisons, including among them, a great majority of our most valued medicaments; all the known contagions, and also the so-called miasms which pollute the air, and those atmospheric conditions which give rise to so many endemics and epidemics, and wide-wasting pestilences, whether we regard them as parasitic, animalcular or fungous, or inorganic, effluvia or gaseous productions. In the disquisition as to the incidental sources of so much of our more familiar suffering from alterations of temperature, dietetic errors and excesses, and the like, we are apt to lose sight of the tendency in dwelling on the easily avoidable character of the cause or the transient duration of the effect. Certain coincident circumstances occasionally attend, which confound or mislead us by indirect and compensating benefits, either occurring accidentally or wisely designed, and brought about under the guidance of experienced observation. There lies the foundation of many of the most cherished beliefs of the empirical practitioner, many of the traditions of the domestic prescriber, and the self-complacent nurse. A poison which acts promptly as emetic, comes thus to be regarded as no poison, because it occasions its own rejection; indigestible or irritating articles giving rise to diarrhœa, lose their terrors in the fact that they cause themselves to be expelled. The disturbance first excited is forgotten, in the compensative relief ultimately reached. It would be too long a digression here, to show how, upon this hint grew up our present materia medica, with its thrice blessed accumulation of means of indirect restoration—its paradoxical employment of the most deleterious agents in nature and in art, for sanatary purposes; its allopathic and homeopathic administration of drugs. I desire here, that it should be noticed that the relevancy which, I contend, must always exist between the cause and the effect, between the disease and the agent, which gives rise to it does not, in the cases properly incidental, depend exclusively, or even prominently, upon the exciting or immediate mode of causation—the abrupt alteration of temperature—the quantity or quality of the food taken, but rather upon that other and very important element of causation, the state namely, of the constitution, the organism acted on, the pre-disposition, as it is well called. I have said that it is rare to find an example of perfect health, which implies an absolutely exact balance of powers and susceptibilities, a due proportion of vital activity in all the tissues, and unmodified purity of all the fluids. Nay, it tasks our imagination to conceive of the existence of such an example. But if there be any impairment of this complete perfection, if there be something less than the proper vital force in any part, something of disproportion or incongruous material in any organ, something of defect or deterioration in any fluid, we have at once before us an inlet of evil. This "pars minoris resistentiæ," to use a phrase of Henlé, is ready to receive a morbid impression, and the nature, the character of this impression will be determined by the specific function, or adaptation of the tissue or fluid affected. Can any one deceive himself as to the tendency of such impression? The animal economy, admirably arranged as it is, may, and usually will, get the better in the contest; but some power must be expended, and so lost, in such resistance, and the condition of the constitution, that has been dragged through it, will be at a somewhat lower standard, than if it had not been subjected to the trial. If the cause ceases to act, the effect may disappear. If morbid material is not longer introduced and the supply of proper nutriment is resumed, the solids and fluids may regain their original composition and powers of action. The organism is passive in its submission to external influences, both good and evil. The strange error prevails, of supposing that while diseases are exopathic, or come upon us from without, and can hardly, in any imaginable case, be truly regarded as autopathic or self-originating, there is a self-acting, internal, spontaneous power of restoration—regeneration, disinfection, so to speak, elastic, and even active.

We are born, victims of evil influences, which have acted upon our parents. We make ourselves victims of such as we voluntarily subject ourselves to, or under the dominion of which, circumstances have brought us. We are well or ill, as we have been forced to be, by causative agents, ever present and inexorable.

Yet, there is no error more universal, none older or more tenacious than the above dogma, assuming so many strange forms, that while the living body is passive and inert, as a subject of morbid impressions, all of which assail from without, yet that it is furnished from within, with a power of repulsion and reädjustment, ever prompt and efficient.

It is both interesting and instructive to trace this doctrine through its varied phases from the earliest records to the present day. Let us select a few of these. Of course we must commence with Hippocrates, whose theory of Medicine, as condensed by his erudite translator Adams, is "based on the belief of a spiritual essence, diffused through the whole works of creation, which was regarded as the agent that constantly strives to preserve all things in their natural state, and to restore them when preternaturally deranged. This is the principle which he called nature, and which he held to be be a vis medicatrix, "the Physician of diseases." (Vol. 3, p. 19.) He taught that "the body is composed of the four elements, from which are formed four cardinal humours; these are liable to change; health consists in their right constitution and adjustment as to quantities; diseases in their impurities and irregularities; the disordered humours undergo spontaneous changes, or what he calls coction, a process requiring time, hence critical days and critical discharges. The primitive disturbance of the humours, he ascribes to a great variety of causes, chiefly the influence of surrounding physical circumstances, such as air, water, heat and cold. Disease continues so long as the humours occupy the body in an unnatural or adulterated state, as they ferment or undergo coction, various characteristic symptoms occur and when their elaboration is completed, they are discharged by perspiration, or otherwise. But when such relief is not accomplished, the peccant humours may be localized in some organ;" and the field for the display of the Physician's skill, is in aiding the discharge or elimination.

Observe here, the principle laid down, that disease is from without—health from within—being defended and restored by spontaneous changes, coction, discharge, elimination under the guardianship of the presiding spiritual essence—the vis medicatrix naturæ. I will not dwell upon the archœus of Van Helmont, the anima of Stoll, or any other of the vague embodiments of the same notion, but passing over some centuries, bring you down to the speculations of our greatest modern, Cullen. Discarding the superstitions of his predecessors, he reasons from the assumed vital properties and susceptibilities of the living solids, "condemning all notice or introduction of the fluids," which, as you remember, play the principal part in the scheme of Hippocrates, and, indeed, denouncing indignantly, "the whole humoral pathology." This method, says Buckle, (vol. 11,) is entirely deductive. He assumed the premises or first principles, and reasons therefrom. Thus rash and groundless assumptions are most ingeniously wrought out. He assigns the chief place among the vital functions, to an occult principle—the animal power or energy of the brain—and his views are best displayed in his theory of fever. The cause of all "fevers," he says, "is diminished energy of the brain, which is produced by various sedatives, effluvia, marsh and human, intemperance, fear and cold. Rapidly passing through the nervous system, its first palpable effect is a cold fit or chill, which is accompanied by a spasm on the extremities of the arteries. This spasm on the extreme vessels, excites the heart and arteries, which excitement continues until the the spasm is relaxed; at the same time the increased action of the heart restores the energy of the brain, the system rallies, the extreme vessels are relieved, while as a consequence of the whole movement, sweat is excreted and the fever abates. Such is the nature of the animal economy that the debility proves an indirect stimulus to the sanguiforous system. With regard to the event of fevers, this is the fundamental principle; nature cures the disease; certain motions tending to death continue the disease, but in consequence of the laws "of the animal economy, other motions are excited by those, which have a tendency to remove it." Observe here, again, that the source of disease is without—exopathic; the restorative action is internal, automatic, spontaneous; the necessary result of some imagined property of the organism, or law of its being.

In the recent writings of our most scientific authorities, a modified humoral pathology again finds a prominent place. Coction is never, or very rarely, spoken of, but allusions to a ferment, not exactly that of the ancients, but altogether undefined, are permitted, and we have a large class of zymotic maladies. Vitiations of the blood and other fluids, are freely assumed; acid, or other inquinations of the system are admitted as the probable pathological conditions—contagious and infectious miasms, it is not denied, must penetrate the circulating mass, and find their way to the organs and tissues upon which they expend their force. In all the diversity of hypothesis, however, the same course of thought will be found to prevail; the evil agency impresses from without; the resisting and restorative principle is energetic within. There is a struggle, spontaneous or resulting from a happy necessity, originally devised and prepared for the emergency. Practically, we have fallen back to the ground occupied by Hippocrates, and regard the office of the Physician as simply a ministration in aid of nature; whatever we understand by that comprehensive word, we wait her movements, her preparatory ferment, her coction and concoction, and then we interfere, merely to assist her in the elimination of the morbid matters which are to be got rid of.

That I do not overstate the predominance of this therapeutical theory of elimination, a few instances will show. Gregory writes strongly of "the mischief which may take place while the scarlatinal poison is in process of concoction and struggling like a giant in prison to work its way out." (P. 158.) Bennett, boasting of uniform and hitherto unparalleled success in the treatment of pneumonia, administers restoratives only; that is, nutritious food and drinks. He speaks of "crisis by sweat or stool," which he takes care not to check. "As the period of crisis approaches, he gives a diuretic to favor excretion of urates." (Med. Rec'd, April 16; p. 86.) Another writer, more explicit in his speculations, maintains (p. 77) "that pneumonia is the result of the presence in the blood of a poison which nature seeks to get rid of, through elimination effected by means of the inflammatory exudation which fills the air cells." Rokitanski represented the typhosis deposit in Peyer's patches in enteric fever as a mode of eliminating the typhus poison. Simon speaks even of cancerous tumour and ulceration as "an eliminative effort of nature." "It is highly probable, (says Aitken, vol. 2, p. 166,) that malignant tumours eliminate something specific." Todd suggests of epilepsy a cause in renal inaction, and seems to consider the convulsive paroxysm, as a sort of eliminative explosion. Prof. George Johnson has convinced many of our brethren, that cholera depends upon a special poison in the blood, which seeks an outlet, and escapes by a gastro-intestinal excretion, and that the choleraic vomiting and dejections are eliminative and salutary, and ought to be encouraged, not repressed. Aitken recommends the promotion of the sour, offensive sweats in rheumatism on the same principle—that thus the lactic acid poison is eliminated and removed; and others apply, with this purpose, repeated blisters to the diseased parts to give this relief locally. "The materies morbi is obviously got rid of by the sweating, and the natural cure of the disease is effected by these profuse sour-smelling perspirations." (Aitken, vol. 2, 16.) Somewhat inconsistently, he continues, "Whatever, therefore, the poison may be, which induces the rheumatic state, it is one which appears to be generated within the system, and not absorbed from without. It is indeed; and not derived from extrinsic sources. The researches of Dr. Parks lead "to the belief that it is some substance rich in sulphur." (P. 10.) But unde derivatur the sulphur?

A very remarkable exemplification of these views is found in the recent work of Dr. Rennie, Staff Surgeon of the British army in China, published 1865. He mentions a form of pestilential fever, which he met with in the neighborhood of Pekin; he calls it "spotted fever"—"a contagious fever, not dangerous if the eruption comes out freely"—an old notion prevalent with practical results before the time of Sydenham. And afterwards, relating a case of small-pox in a child three years old, he tells us that he "explained to his father that the most prudent course was to follow the dictates of nature, and to encourage as much as possible the process which she had commenced, by throwing the disease out on the surface of the body, and thereby save mischief being done to some internal organ by a part of the poison remaining unexpelled. With this view I provided him with means of furthering the development of the small-pox eruption on portions of the skin on which it had not appeared. The treatment involved nothing more complicated than the application, by friction, of a little croton oil to the parts free from the eruption." (266-7.) He alludes more than once complacently to this, his mode of converting distinct into confluent small-pox—a therapeutic as strange and original as the ancient practices based on similar notions are, happily, obsolete. Yet, after all, perhaps the most emphatic utterance of this paradoxical opinion concerning the utility, benefit, restorative, and, in a general sense, salutary influence of disease, or diseases, is found in the recent writings of the distinguished Dr. John Brown, of Edinburgh—p. 310, vol. 11. He is speaking of his father, who, after a long course of usefulness and honor as a clergyman, died at a ripe old age. "I have said that though delicate, he was never ill; this was all the worse for him, for, odd as it may seem, many a man's life is lengthened by a sharp illness, and this in many ways. In the first place, he is laid up out of the reach of all external mischief and exertion, he is like a ship put in dock for repairs; time is gained; a brisk fever clarifies the entire man; if it is beaten and does not beat, it is like cleaning a chimney by setting it on fire; it is perilous, but thorough. Then the effort to throw off the disease often quickens and purifies and corroborates the central powers of life; the flame burns more clearly; there is a clearness, so to speak, about all the wheels of life."

These hypothetical speculations, abstract as they may seem, thus bear immediate fruit in practice, and suggest two contrasted methods of treatment of diseases. Some regard this vis medicatrix, this archæus, this defensive and restorative power, as all sufficient for its beneficent purposes, and decline, therefore, to interfere impertinently and uselessly in the contest, beyond the mere avoidance of all lœdentia and the careful institution and observance of proper hygienic regulations. This is the medicine expectante, which has always included many of the sagest minds of the Profession, being, however, very seldom followed out with logical completeness, almost every member of this school entertaining a greater or less degree of favouritism for certain agents which he regards as safe from injurious liability, and capable of aiding nature in her efforts. Others, not admitting the omnipotence of this preservative energy, look upon the office of the Physician as though not altogether negative, yet, at best, merely protective, secondary, and adjuvant. Of the wisdom of nature, they entertain no doubt, and are thus led to esteem all the phenomena of disease as manifestations of the true method of relief and recovery—indications of the course we are to follow. Thus arose Homœopathy, though all who maintain these doctrines do not allow themselves to be called homœopathists. G. Johnson gives purgatives and emetics in cholera, and Rennie solicits more diffused eruption in small-pox less than confluent. I am far from doing such men the injustice of confounding them with those who, professing to hold that similia similibus curantur, indulge their imaginations in ideal analogies, and dupe themselves or their followers with the absurdities of infinitesimal prescription. I have much respect for many of those who, with Bennett, wait for crises, and do not oppose, but timidly promote them ; or with Todd and Chambers, support the burdened constitution with tonics and stimulants, under the modest notion that as they do not clearly see what nature is doing, they must only seek to strengthen her blindly for her work.

I believe, and have endeavoured to maintain—

A. That disease—never a salutary process—is essentially evil, and always tends to evil.

B. That spontaneous recoveries take place, not because the diseases cure themselves, but because they fail to kill.

C. That there exists in the organism no special power of restoration, under whatever name. Life, itself, is the vis medicatrix, and nutrition the mode of action.

D. That the elimination of poisons, or of diseased products from the system, is not effected by the diseases they excite and attend on.

E. That such elimination is effected by, and is proportioned to the remaining healthy functions, and not to the extent of diseased actions.

F. That true therapeutics consist, in our present ignorance, chiefly in fostering the residual powers of natural action and function, and

G. That our hopes point to antidotal means of arresting, correcting and counteracting the causes.

Disease is not a unit. Diseases vary infinitely, and require to be studied in their individuality. I shall not hesitate to speak of them, whenever it suits my convenience, as entities—not mere conditions, but real things. The imputation of the error, or weakness of "Ontology"—almost a crime in the eyes of some of our medical philosophers, has no terrors for me. I fully agree with Mansell, that "ontology is but a higher kind of phenomonology, the object of any consciousness being not necessarily a thing in itself, but a thing as we are compelled to conceive it." When I speak of small-pox, I am understood at once, whether he who hears me fastidiously, resolves the term into an expression of numerous concurrent morbid conditions, or cuts a "gordian knot," very hard to untie, by accepting the word as a brief definition of an actual object of thought. Of fever in the abstract, we may acknowledge that it is very difficult to form a conception, but when I refer to intermittent or typhus, or yellow fever, or hectic, no one is at a loss to know my meaning: I am not to be silenced by the taunt of uncertainty and vagueness of definition, or differences of opinion among ourselves. The same difficulties are presented when we deal with the coarsest and simplest material objects. We all think we know what *coal* is, for instance, but it is not long since, in the course of a law trial in Edinburg, so many experts were brought up, who swore as to the same masses, that they were, and that they were not coal, that the court and jury became absolutely mystified and the case had to be decided upon other than scientific grounds. (V. London Quar. Assi. 1866.) When we use technical phrases in pathology, that are not definite or fairly significant, such as tone, spasm, irritation, or the like, our meaning is vague because our ideas are uncertain or confused. The wise poet, Tegner, chants in his Northern Saga—

> "Thou knowst not what thou canst not clearly say;
> Man's lips give birth to words and thoughts together—
> The obscurely uttered is the obscurely thought."

Diseases are relevant to their causes, which differ infinitely. Their phenomena, or symptoms, as we call them, must differ also with the structure and function of parts affected. The most familiar diseases, both local and general, present us with obvious examples. Inflammation is not the same when caused by fire, or by small-pox poison, or a blow; nor is it identical, when affecting different organs and tissues—the mucous and serous; the areolar and glandular; croup and pleuritis; variola and erysipelas. Typhsis and carcinoma are essentially variant; but in every instance, so far as it goes, and in whatever mode it may act, the cause of disease—the remote cause—is harmful in its energy, its influence, its course, the proximate cause, the immediate morbid result—a departure from the normal action, or condition, a perversion, an effect becomes, in its turn, a source of a series of evils, transient if the original impression is transient (causa sublata tollitur effectus,) and if it has given rise to no permanent change, it is limited in degree and extent, proportionally to the degree and extent of impressive force. This may be so violent as to be fatal at once, as a stroke of lightning—a drop of prussic acid; somewhat less so as the choleriac poison, which kills in an hour; insolation fatal in a few hours; malarial congestion, or typhus infection, which bring on death in a day, or a few days—or, it may be so patent in extent, as to subvert the whole of the original forces of supply, and renovation, as in some of the cachexias and constitutional inquinations, leprous, scorbutic, strumous, syphilitic, carcinomatous. I need not formally lay down the proposition, that all these evil agencies impress the system from without. This is obvious, as I name them. Life itself, many physiologists say, is a forced state, dependent entirely upon the continued application of stimuli. Whether this be true or not in the abstract, or philosophical sense, which I am disposed to deny, we cannot help admitting it to be practically true in the most absolute degree. All the manifestations of life will cease with wonderful promptness, when these stimuli are withheld, and in different degrees of rapidity, in proportion to the unknown variations of instant indispensableness. Thus, death, from want of air, will take place in a few seconds. No diver can immerse himself more than two minutes, or two and a half, and burking, garrotting and other modes of suffocation, extinguish life rapidly and easily. Want of fluids will destroy a man in a few days; he will survive the want of food for two weeks, perhaps. His existence will be feeble without light, and a temperature around him which subtracts heat more rapidly than his food and digestion generate it, will soon freeze him to death. Thus, he depends for existence and a fortiori for health, upon a due supply of all these necessaries of life, and if they are supplied in an insufficient quantity, or adulterated condition, he will enjoy a life and health below the perfect standard. If the adulteration be of positively and impressively injurious character, of poisonous quality, as we express it, a direct and immediate abatement of vigour, an immediate arrest of living action, an absolute extinction of vital power may take place, instantaneous or progressive; or an ingraftation or implantation of productive germs, may take place, which shall supersede the original molecular or atomic material of growth and supply.

It would be absurd to deny—it is not my purpose to suggest a doubt—that in many instances, all the disturbances which arise in these several modes, will subside and disappear without our interference. But I hold, that it is of great importance to understand how this happens, and I propose to enter into the enquiry with entire impartiality. I am prepared to maintain most distinctly, that we shall not find this restoration to health, however it is to be accounted for, to depend upon or arise from the processes in which disease consists—most assuredly not by elimination or extrusion of any poisons, by actions excited by those poisons. "Abominandum remedii genus debere salutem morbo," is a line of Publius Lyrus, well applied to describe this strange pathology, which regards disease as its own cure. Vomiting, a familiar example, like sneezing and coughing, is an action, partaking both of pathological and physiological character. It is the result of any mode of irritation affecting the special nerves of certain surfaces, and this irritation may be mechanical or static, dynamic or sympathetic. It is not only the specific effect of some specific poisons, but an incidental result of the impression of a great variety of articles of food and drink. For the few instances in which it may be adduced, as relieving the system of the diseases, or of the cause of disease, which gave rise to it, there are thousands in which it is only evil, tending as in yellow and remittent fevers, and cholera and gastritis and sea-sickness, to increase the irritation on which it depends. The same observations may be made in regard to diarrhœa, so confidently referred to as proving the truth of the same doctrine. Any mode of irritation excites in the intestines, the instinctive effort at defecation, which was originally purposed to get rid of the débris of food, and probabably certain hepatic, and other excreta. This instinct, inordinately aroused and perverted, becomes tenesmus, which is augmented by its own indulgence, as in dysentery and typhoid fever, &c. It is thus often a source of fatal disturbance and exhaustion.

Diseases are fatal in many ways, in other words, there are many modes of death, which pathologists have arranged and classified according to their several views. Death may first be considered as positive and negative, and the distinction is by no means uniformly easy or clear. The promptest mode of negative death, is apnœa, as it is styled by Williams, deprivation of air—suffocation. This requires a very brief interval—two minutes immersion, or burking, or hanging, or choking, will probably suffice. I do not now speak of the molecular death, which is rather a chemical change of condition, than properly physiological, but the somatic, by which is intended that contrasted state, the true opposite of life, in which the organism has lost, or been deprived of its susceptibility of being impressed by or reäcting upon the agents, with which it is in normal affinity or harmony. The heart, the brain, the lung, may be wounded grievously, and the subject may continue to live; but if you touch the nœud vital of Fleurens, you can scarcely remove the instrument you employ, before life shall be altogether extinct. A fowl decapitated, will flutter about for some minutes; its eyes and bill will open and shut; but I saw one gaffed in the neck, at the junction of the head, succumb and collapse, without the quivering of a feather. An animal falls stunned by a merciful blow of a mallet, who would, if pithed, suffer intense pain or rigid spasm, or gasp with prolonged depression or vehement convulsion, if bled to death. More prompt, even, than suffocation, is death from concentrated hydrocyanic acid, applied to the tongue or conjunctiva of the eye—a positive death, the most instantaneous; approaching it, is the death from a large amount of alcohol, taken into the stomach, which acts like a sudden violent blow on the epigastrium. Next, perhaps, is the death from the inhalation of chloroform. This appears to me, to be clearly positive, and not an apnœa merely, as some regard it. A man who is choked, or half drowned, and relieved, is himself, at once, again. Chloroform is, in a marked degree, and for a considerable time, depressing, as I have often experienced, and it is in this way that it kills. It is always dangerous, unless when counteracted by pain, or by the condition of which pain is the manifestation. None die of it, except those who take it as a preventive, while free from pain. Ether, which displaces as much, if not more respirable air, does not kill.

The poison of cholera may, perhaps, be mentioned next in order. I need not say that we know nothing of its nature, but by its effects; and it is probable that some allowance must be made for the natural liability to exaggeration in the received statements. But with all this allowance, it must be regarded as singularly prompt, when concentrated. The Pindarries, or grass-cutters of India, have been found lying upon little heaps of fresh cut grass, under circumstances which rendered it probable that they must have been ill but a few minutes. Sir Stamford Raffles speaks of terminations within half an hour, as not uncommon in cases in Batavia. And all must remember Magendie's famous phrase concerning it, that "it commenced where all other diseases end—in the death and cadaverization of the patient." Nelson, of New York, denies that cholera is a disease, insisting that it shall be regarded exclusively and directly as a special mode of poisoning, as the deaths from arsenic, strychnine, prussic acid and opium are regarded.

Spotted fever, in its recent visitations, exhibits the effect of a typhic poison very rapid in its influence. A Physician, who saw much of it, told me that a considerable number of his patients died within seven hours from the invasion of the attack; it is true that there may have been a more gradually progressing influence exerted latently. I am inclined, however, to admit that a fair calculation may commence at the first moment of shock or complaint of suffering. Up to that time causation has not begun—has been suspended—the relation between the amount or force of the poison and the predisposition or absence of it, or the contrasted state of resistance, or insusceptibility have been unchanged. Thus, a little boy was seen by Drs. Morrison and Lodge eating, in apparent good health and with appetite, less than two hours before his death—spotted. Malaria sometimes, capriciously as it seems to us, in our dark ignorance, strikes a deadly and direct blow at the sensorial and circulatory system, stunning, with what we call congestion, algidity, pernicious force, which cannot be resisted or endured, and life goes out hastily, with swift and steady progress in a few hours from the moment of attack. Yellow fever is seldom quite so prompt; yet often kills in three, four and five brief days. In these deaths, the body, to use the language of John Hunter, has, in typical cases, "all the composition it ever had." No organ has undergone such perceptible structural change, as to unfit it for its function; no function has been obstructed in any palpable way; and thus, when we are discussing diseases seriatim, we shall frequently be obliged to confess that the cause of death, sometimes in particular individuals, sometimes in whole classes, is unknown and undetected. In the progress of our science, aided, as it always is, by improvement in all other sciences and all other arts, we hope that we shall acquire more and more knowledge of this sort; diminish the realm of the quid ignotum, and widen the small circle of light, surrounded by the vast impenetrable obscure which encloses and oppresses us.

But already we are occasionally able to see why a patient died, when we cannot detect the relation between a disease and its cause, and the fatal event, for that may often be inscrutable, even when the special condition of the individual shall explain why it has become inevitable. To illustrate my meaning: When we find a perforation opening together, the bowel and the peritoneal sac which has taken place during apparent convalesence from typhoid fever, we know the immediate cause of death; but we have not prevailed to trace the links of the chain of causes and effects which connect that fact with the history and pathology of the case, either as a typical or exceptional one. Why was it typhoid or abdominal, and not typhus or cerebral? Why was the mucous surface of the intestine affected? Was there any typhous deposition? Was it a pathological accident or a normal physiological effort to eliminate a poison? Let us exclaim with La Place—"Our knowledge is a little matter, our ignorance is immense."

Upon careful reflection, we shall thus be led to comprehend the true value of morbid or pathological anatomy. 1. It will manifest to us the immediate cause of death, as in the example just given. We must make distinctions here, too. These manifestations may be rare or merely accidental, as when we find emboli—clots—in the heart, the large vessels, the vessels of the brain, or hæmorrhages, as in the cerebral tissue. I recollect an instance, in which a patient dying suddenly in typhoid fever with coma, presented a large clot at the base of the brain. 2. It will show us lesions as usually occurring, but not to be explained, and not accounting for death, as in yellow fever, where we have, in most cases, fatty liver and fatty heart. Bell tells us that he often meets with typhous deposit in the typhoid of Glasgow. 3. It will offer us products of diseased action, whose presence is coïncident with fatal results, but which cannot be received as causative of them; thus, the melanotic exudation, "black vomit," in yellow fever and the sordes of the typhic class; pigmentary change in the liver of bilious remittent; intussusception in children, loose and harmless, as well as inflammatory and hernial. 4. We shall derive satisfactory information as to the pathology of certain obscure cases, as in the several varieties of Bright's disease, or acute and chronic nephritis, where the changes of the structure of the great excretory organs prevent the elimination of this and other effete matters which, when retained, act as virulent poisons.

We shall further apprehend the modes and causes of death, by careful observation of the contingencies observable, whether during life, or in the act of dying. Death may be brought on by the mechanical interference of the products of diseased action with the vital functions, thus in croup by the closure of the larynx or glottis as by membrane, swelling, or œdema; oppression from serous exudation, as in hydrothorax, or purulent, as in empyema, or gaseous, as in pneumothorax and in tympanitis. Pneumatosis may destroy life by the mere distension, as in some colics, where the tone of the bowels is lost with their expulsive power, and the abdominal pelvic, and even the thoracic viscera, are rendered incapable of function—intussusception takes place, or rupture or laceration of ulcerated or softened portions of the tissues. Purulent effusion, in the lung or the brain, may thus be fatal, or exudation of serum in the ventricles.

Insolation may be promptly fatal, by engorgement of the lung, as Russell and Dowler have proved, and by similar engorgement, quasi apoplectic, of the brain, as I have seen. Thus, malarial pulmonary congestion suffocates. More slowly we witness death sometimes from the hæmal infiltration of pneumonia, or the suppuration which fills the air-cells and tubes, and still more gradually from the numerous maladies which interfere with the great functions of digestion, assimilation and nutrition, and sanguification. Many of these are purely dynamic, and exhibit no statical or organic change in the most minute inspection of the parts affected—the stomach, the pancreas, liver and spleen.

I need not dwell on death from exhaustion, as in the hæmorrhages and profluviæ, in albuminuria, diabetes, diarrhœa, etc.

But we must, for a moment, consider the modes of death from actual or positive poisoning. This event results from detention of effete matters, or introduction of malignant agents from without, or the new production of such viruses or evil, and destructive material through the special action of diseases themselves. Of the first, I need only observe that there is a perpetual metamorphosis of tissue going on in the living body, most active where there is most life, atoms becoming transformed or transubstantiated, from dead to living, to supply the place of atoms used, which, like all earthly things, "perish in the using." These last, finding natural outlets, always open and flowing in health; obstructed or closed in disease. Such obstruction, indeed, constitutes the most familiar among the symptoms of disease, and the retention in the body—whether in the solids, or the circulating or secreted fluids—of such effete, dead, decaying matters must be injurious, and if continued, fatal. Even the materials of nutrition, as Paget reminds us, must, if they are not deposited when they are due, in a certain sense, inquinate the blood, and load it hurtfully. This non-elimination, however, or failure of appropriation, can not be very directly or uniformly mischievous. If it were, we should find it difficult to account for the good health of so many persons truncated by amputation of one or more limbs. In these, the unused, and now surplus material of supply, must find ready removal through the ordinary excretories. Henlè accounts for the frequent conversion of ordinary into malignant forms, by the accumulation of effete matter in the system, from failure of excretion; indeed, it seems strange, that this does not happen far more frequently.

Of the introduction of poisons from without into the organism, we need only cite the instances of malaria or atmospheric miasms of infinite diversity, and in an especial way of contagions. How these are introduced, it is not always easy to say; some can be inoculated, others are probably taken by the lung and the skin. The stomach may admit many, mingled with saliva, with the food, and in our drinks.

In the discussion of the third method of poisoning, we plunge at once into the bitter waters of controversy. No positively new formation is admitted to take place, under any imaginable conditions, by a large school of Medical theorists. Virchow lays down, as an inexorable axiom, omnis cellula e cellula. All differences, however marked, are resolved into mere variations of plus and minus. A cancer cell is only distinguished from a pus cell, or a tubercle, by its higher development of comparatively gigantic corpuscles, nuclei and nucleoli; tubercle being a diminutive granule, with little cells, and a pus-corpuscle, only discernible from a colourless blood corpuscle, by its origin, "if you do not know whence it has come, you cannot say what it is." (P 155.) We must not be deceived by their resemblances, which cover, to our imperfect capacities of perception, immense intervals of the most positive difference. The early germs, the ova of many animals, especially those of the same species or genus, are not to be distinguished from each other. A little oil in a pellicle of albumen—this is all. "If you do not know whence it has come, you cannot say what it is," in the phrase of Virchow. But if we give full play to the principles of differentation existing within them, one will develop into a whale, another into an elephant, a third into a mouse, a fourth into a man. So it happens, in the progressive stages of such maladies, as are marked by material products—organic changes of palpable structure and composition. However the diseased movements originate; whatever may be the primary perversion and derangement, nothing is more certain than that, in their course, they generate out of the elements which, so to speak, they manipulate, new and special creations, which arise independently of existing substances, and are possessed of entirely novel properties. In the pus of a small-pox vesicle, and on the surface of a chancre, there exist atoms, not to be detected by any methods of examination yet known, which have been elaborated within the body, and which are capable of impressing other bodies in a peculiar and essentially exclusive way. So it is with all the contagions, equally and alike. I have mentioned two, both of which may be imagined to be cellular in form, and derivable as cells from cells.

But there are many that exhibit no such conditions ; and, indeed, small-pox in atmospheric diffusion, like whooping-cough, measles, &c., presents no visible materies morbi, and how shall we account for the spontaneous origin of cancer, whether of hereditary derivation or degeneration. Paget says of it, (668,) "A cancer is from the first both a constitutional and a specific disease. I believe it to be constitutional in the sense of having its origin and chief support in the blood, and I believe it to be specific : 1st, In the sense of its being dependent on some specific material which is different from all the natural constituents of the body, and from all the materials formed in other processes of disease ; and 2d, In the sense of its presenting structures which are specific or peculiar, both in their form and in their mode of life."

These reflections upon the several modes of disorganization and death, as shown in the progress of disease, in the act of dying, whether prompt or gradual, and in the lesions discoverable in the dead body, lead us to the most important practical and therapeutical results. They constitute, by instructing us in the disorganizing changes which belong to each of the varied forms of disease, our best guides in the treatment of these maladies. They establish our true indications, and point out our clearest and most urgent professional duty—to ascertain, as far as possible in every instance, and having ascertained, to set ourselves to "obviate the tendency to death" most prominent and menacing, and thus, in the examination of our patients, we shall be led, not merely to the general diagnosis, but we shall not be satisfied, until we have set apart every individual case, and have discovered its special peculiarities, informing ourselves of all the weak and strong points in the constitution, guarding the one and building upon the other—surveying the whole ground and laying out a correct chart by which we shall be hopefully and rationally, safely and successfully, guided, if safety and success be attainable.

ART. II.—REPORT OF A CASE OF GUN-SHOT WOUND OF BLADDER, WITH RECOVERY—FOLLOWED BY CALCULUS—ITS SUCCESSFUL REMOVAL BY LITHOTOMY. By R. L. MADISON, M. D., Staunton, Va. (Late Surgeon Virginia Military Institute.)

Sergeant S. F. P., æt. 25, Co. C, 1st Virginia Cavalry, Wickham's Brigade, was shot, while on horseback, in the battle of Front Royal, August 16, 1864. The ball entered two and a half inches above, and to the outer side of the left trochanter, passed through the body of the ischium, traversed the bladder, and lodged beneath the skin on the anterior surface of the right thigh, about six inches below Poupart's ligament. A few moments afterwards, he was shot through the right foot, the ball passing from without inwards, and from above downwards, fracturing the third and second metatarsal bones.

Some four hours after the reception of the first wound, the ball was removed from its position, under the skin, by Surgeon Owen, of the brigade, and urine was voided, through the wound of exit and the urethra, alternately, for two weeks. At the expiration of this time, he came under the care of Dr. Dorsey, who wisely introduced a catheter, which being retained in situ, for sixteen days, enabled the track of the wound to heal, and the water to flow through the natural channel. During the whole of this time there was not a great deal of suppuration or constitutional disturbance; no urinary infiltration, no erysipelatous inflammation, and only that degree of prostration to be naturally expected from a wound of such severity. By the first of October he had convalesced sufficiently to bear transportation, and was conveyed to his home, in Rockbridge county, ten miles west of Lexington. Here he was placed under the care of Dr. Leitch, his family Physician. About the first of May, 1865, the father of the young soldier came to Lexington, where I was then residing, and stating that his son was suffering a great deal with cystic disorder, requested me to visit him. On the 5th of May, I saw him, in consultation with Drs. Leitch and Mackey, and received from him the above history of his case. Found him suffering very much from pain in the bladder, frequent micturition, and a slight muco-purulent discharge, from which he had never been entirely exempt. These symptoms led to the suspicion of stone. The wound in the right foot painful, and still suppurating. The bladder symptoms were of only four months' duration, but were manifestly increasing in severity.

Nitro-muriatic acid, with demulcent drinks, were prescribed; warm fomentations to hypogastrium and perineum; anodyne at night.

May 12th—Second visit. Present, Drs. Estill, Leitch and Mackey. Patient better; less irritation of the bladder. The sound readily detected the existence of stone, the metallic click being distinctly audible. It was decided to perform lithotomy, and that day week was appointed for the operation. Continued the use of the acid and demulcent drinks.

May 19—Drs. Estill, Leitch, Wilkinson, Mackey and James present. Patient in tolerable condition, but suffering some malaise from imprudence in diet. The sound was again introduced, and the presence of the calculus recognized by each of the Physicians.—The patient was then secured in the usual position, ether administered, the staff introduced and held by Dr. Estill, and the bladder opened by the lateral operation with Liston's knife. At the first gush of water the stone was seized with Barton's forceps but finding it too large to be removed without converting the operation into the bi-lateral, they were withdrawn, and another and a larger pair introduced, by which it was easily crushed into several fragments. These were then readily removed by the small forceps, and scoop. One fragment, however, was partially adherent, necessitating the aid of the left index finger for its detachment.

After carefully syringing the bladder with tepid alum water, the patient was placed in bed on his left side, his feet drawn up, a small pillow placed between his knees, and a suppository of two grains of morphia introduced into the rectum. Resulting hæmorrhage trifling; pulse natural before and after operation. During the afternoon, patient complained a good deal of the smarting occasioned by the flow of urine over surface of the incision. Treatment—demulcent drinks freely, and half grain of morphia at 9 P. M. Had a comfortable night.

May 20, 11 A. M.—Dr. Leitch present. Patient feverish; face flushed; pulse 120; respiration hurried; skin dry; urine red and scanty; restless and thirsty. Gave 5 drops of Norwood's tincture every two hours until 7 P. M., when his pulse was reduced to 80; skin pleasant and perspirable; appetite restored, and his condition as favorable as could be expected.

May 21.—Passed a comfortable night; complains less of the smarting. Directed him to assume whatever position in bed was most agreeable, and continued the demulcents, with light and nutritious diet.

May 23.—Still improving; suppuration slight.

May 27.—Still improving; suppuration slight.

June 3.—Passed urine by urethra on June 1st; that is twelve days after the operation.

June 13.—Patient sitting up and cheerful; perineal wound healed. In a few days he began to walk about on crutches. Dr. Leitch and myself now directed special attention to the right foot, and in a few weeks he was able to walk not only without crutches, but without limping.

Up to the present date, the patient has had no return of his bladder symptoms, but has been, and still is, in the enjoyment of plenary health. The only restriction enjoined was requiring him to abstain entirely from the use of limestone water.

This case is chiefly interesting, as adding another to the number of recorded cases of recovery from gun-shot wound of the bladder, where the peritoneum is uninjured, as affording proof that urinary infiltration is not to be feared, as long as a free vent is given to the escape of the fluid, and that the dangers of lithotomy, in the young subject, are not to be compared to those arising from the constant and exhausting irritation occasioned by the presence of a calculus.

I cannot close this report without expressing my sense of obligation to the Medical gentlemen who attended and assisted in this case. To their skillful coöperation, and intelligent counsel, very much of the successful result is to be attributed.

ART. III.—DIPHTHERIA—ITS HISTORY, PATHOLOGY, NATURE, AND TREATMENT. An Essay which received the first Prize of the Medical Association of the State of Georgia, June, 1866. By E. S. GAILLARD, M. D., Richmond, Va.

[CONCLUDED.]

The effect of hygienic conditions on the course of the disease.—Whatever may be the effect of hygienic conditions, on the etiology of diphtheria, their influence on the course of the disease is undoubted. It forms of course no exception to the general law, in regard to the course of all diseases, that a strict study and practice of hygienic precautions, must contribute to the safety and welfare of patients and communities. It would be idle to quote statistics or furnish testimony for the enforcement of this patent and invariable truth.

City and Country atmospheres.—We have seen that diphtheria prevails, with equal malignity, in Town and Country, and that some of the most fatal and extensive epidemics have prevailed, in the pure bracing air of the Country. Like many non-contagious diseases, it is frequently seen in the Country, as well as in the City, and, unlike contagious diseases, it does not seem to select for general, or most frequent prevalence, the great centres of population. It has not been observed, that City atmospheres under fair hygienic conditions, give increased malignity to this disease. Some of the most malignant cases have occurred in the retired and clean hamlets of England, and the history of the disease in every Country, is but a further illustration of this fact.

Age and Sex.—Attacking persons of every age and sex, diphtheria may be considered as most generally attacking children. In California, from eighteen to twenty per cent. of the deaths have been among children ; Dr. Hatch of that State has examined the records, in this connection. In Avignon, eighteen per cent. of the children were attacked, in a regiment quartered there, whilst only four per cent. of the soldiers suffered. In Albany, N. Y., of one hundred and eighty-eight fatal cases, one hundred and eighty-five were children. In Boulogne, of three hundred and sixty-six fatal cases, three hundred and forty-one were children. Brettonneau, Peter, Trousseau, and others, in France, state " that the chief subjects of diphtheria were below ten years of age. " Of one hundred and thirteen cases treated by Mr. Leonard, of Dursby, England, sixty-three were under ten years of age, and only seventeen above twenty years of age. It would appear, that the susceptibility to diphtheria diminishes very early in adult life. Greenhow states, that this is the case in regard to the fatality of the disease, it being much less fatal after puberty. In the Albany epidemic, Dr. Willard states that the cases, among females, were more fatal. In the statistics compiled, however, by Dr. Reamy, of Hopewell, Ohio, the reverse of this was true ; he treated ninety-two boys and forty-three girls ; average age of all cases treated, five years. Dr. Kersey, of Milton, Ind., states that of twenty adults, treated by himself, all recovered ; whilst the disease was fatal among children. Dr. Odriozala states, that at Lima, Peru, " the black race has been as resistant to this angina, as to yellow fever. " * Children were the principal subjects there. In Wisconsin, in one hundred and thirty-three cases, twenty-six were adults, and one hundred and seven children ; of the adults, there was one aged sixty-three. Dr. Jacobi states that, in his cases, "the male sex was in a slight, but decided majority; in two hundred and thirty-five cases, two hundred were of children under fourteen years of age; the majority of the two hundred cases presented an average of three years of age; cases under one year, are infrequent, and over nine or ten, proportionally rare." In twenty cases, seen by Dr. Alonzo Clark, of New York, the oldest case was not over thirty-six years of age. It would thus seem, that in diphtheria, children are chiefly attacked; the most susceptible period, being from two to five years of age; those under one year of age and those over fourteen, manifesting a decided loss of susceptibility; that boys are more frequently attacked than girls, whilst with girls the disease is more fatal; that it attacks the oldest, as well as the youngest persons; that the fatality of the disease and the susceptibility to it, rapidly diminish after puberty. This is all that is definitely known, in this connection.

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*This is by no means the truth in regard to the epidemics in the United States.

Diseases, among the lower animals, coincident with the prevalence of diphtheria.—Dr. Greenhow states, that during the prevalence of diphtheria, "a new kind of epidemic, affecting the mouth, lips and nose, with aphthous ulcerations, and the teats and feet with vesicles and ulcerations (hence called the eruptive disease, or the foot and tongue disease) appeared among the cattle." The disease had almost entirely disappeared, until recently, when it has again prevailed very extensively, and often simultaneously with diphtheria. An epidemic, in which the lungs are chiefly implicated, called pulmonary murrain, or lung disease, and perhaps more appropriately named by Professor Gluge, of Brussels, exudative pleuro-pneumonia, likewise prevailed a year or two later than the preceding, among the herds of this country, and has never entirely disappeared; although, during the succeeding twenty years, there have been some periods, when it has very generally declined, and others, when it has prevailed in a more epidemic manner. One of the latter periods began in 1859 and still continues. What renders these cattle epidemics peculiarly interesting, in connection with the present subject, is the fact that, although at the time of their appearance twenty years ago, they were quite new to the existing generation of dairymen, farmers and Veterinary Surgeons (there being no record of their prevalence in this country, during, at least, the preceding half century) pulmonary murrain, preceded by an eruptive murrain, prevailed about the middle of the last century, just before the outbreak of diphtheria which then occurred. Towards the close of the first half of the century, when Fothergill, Cotton, Huxham, Starr and other writers were describing the diphtheritic epidemic, then prevalent, an anonymous member of the College of Physicians, and Drs. Brocklesby, Hurd and Layard wrote their accounts of the murrain, then prevailing epidemically among horned cattle. This may have been indeed a mere coïncidence, but that the appearance of the eruptive and pulmonary diseases, among cattle, and of diphtheria, in the human subject, are in some measure attributable to the operation of a common cause, seems probable, seeing that several of the older writers, on morbus strangulatorius, mention its coincidence, with certain diseases among cattle. Thus Ghizi says, there was a great resemblance between the epidemic angina which prevailed at Cremona in the years 1747 and 1748 and a disease, affecting the respiratory passages, at that time prevalent among oxen. Dr. Wall, speaking of the epidemic in England, about the middle of the eighteenth century, says "this disease has so great a resemblance to the epidemic sickness among cattle, that I am persuaded it is of the same nature. Severinus, who wrote in the seventeenth century, also mentions that a great mortality, among cattle, preceded the appearance of malignant sore-throat; and M. Malouin, in his account of the epidemic diseases observed at Paris in 1746, says that the disease among cows had already appeared in France, when children were attacked by epidemic sore-throat. Both eruptive and pulmonary murrain have, in many districts, prevailed contemporaneously with diphtheria. I have ascertained this fact, with regard to London, from several respectable butchers and less directly, through professional friends, with reference to other places. Mr. Williams and Mr. Dursby testify, that the mouth and hoof disease were prevalent, among cattle and pigs in that neighbourhood, during the Spring of 1859, about the time that diphtheria prevailed at Cam. At Birmingham, several of the Physicians informed me, on the authority of the butchers, that the mouth and hoof disease and pulmonary murrain had been very common among cattle, during the year 1858 and the early part of 1859. At

North Walsham and Coltishall, in Norfolk and at West Bromwitch, in Staffordshire, the mouth and hoof disease likewise prevailed among cattle, simultaneously with diphtheria in the human subject. Mr. Duncalfe, of West Bromwitch, has favoured me with a memorandum, in which he states, on the authority of a farrier, that a disease, attended with cough, thirst, discharge of mucus from the mouth and nostrils, and inflammation of the lungs and trachea, apparently therefore a kind of influenza, had been very prevalent and often fatal among horses in that neighbourhood, since 1857.—A similar disease appears to have prevailed, in the vicinity of Talleshunt D'Arcy, in Essex; for Dr. Walker writes that a veterinary Surgeon had informed him, that a low form of influenza, often very rapidly fatal, attended with great difficulty of swallowing and a refusal of food, had been common among mammals. Dr. Morris, of Spalding, also informs me, that a disease, accompanied with discharge from the nostrils and fœtor of breath was very prevalent among cattle, during the epidemic of diphtheria, in the human subject. He had also, himself, seen a horse affected with swelling of the glands about the jaw, in which the mouth and throat presented an appearance, similar to that of persons suffering from diphtheria. The horse died, but three others suffered and recovered. Influenza was also prevalent among horses, at Wolverhampton, about the time when the human population was suffering from diphtheria." It is well known, that during the prevalence of diphtheria in the New England States, the cattle epidemic was of the most fatal and destructive character. In the post-mortem examinations, that were made by properly constituted authorities, the lungs, trachea, and bronchiæ were found seriously affected and the report made was, that the disease seemed to be a form of pleuro-pneumonia. Since the disappearence of diphtheria, this cattle epidemic has disappeared also. During the epidemics, in New York, of diphtheria, cattle, that were kept confined, suffered from a disease of the mouth, tongue, hoofs and lungs. It has not given the same treuble, since diphtheria has ceased to prevail there epidemically. In Kentucky, where diphtheria has extensively prevailed, the cattle have suffered from a species of murrain, which affected chiefly the lungs and throat.

Dr. Goldsmith, of Oakland College, Mississippi, seems to think, that there is some connection between diphtheria and a disease that has extensively prevailed among the cattle, in his neighbourhood. "This cattle disease prevailed among the stock of our neighbourhood, whilst diphtheria was raging; it is certainly a coïncidence, that the country adjacent to the plantation, on which 'the black tongue' prevailed, was most affected with diphtheria." In this cattle disease, there is great prostration; the mouth is sore and tender, with an abundant discharge from the salivary glands; the animal refuses to eat, droops and dies; the tongue becomes of a dark and ecchymosed appearance. Dr. Sanderson states that during the prevalence of diphtheria, a similar affection was observed among swine; on a post-mortem examination made, "there was intense redress and swelling of the fauces, enormous swelling of the submaxillary glands, and the mucous membrane of the fauces covered by a characteristic membranous exudation. Death was preceded by symptoms of suffocation." The coïncidence of these diseases in the lower animals, with the prevalence of diphtheria, in the human subject, is most interesting, and is worthy of general and special examination.

Complications.—Greenhow states, that Dr. Wall saw diphtheria complicated "with scarlet fever, with small-pox, and, probably, also with measles." M. Lemaire mentions cases of incomplete amaurosis, not succeeding, but accompanying the disease. The constitutional condition, known as purpura, occasionally is seen in cases of diphtheria; Dr. Greenhow, Dr. Gull, Mr. Williams, M. Trousseau, and others, have reported such cases. Hæmorrhage, while it is general from the mucous surfaces, deserves to be considered as a complication. Mr. Clowes, of Stalham, England, has seen cases, where there was hæmorrhage "from the gums, fauces, nose, vagina and anus." These cases were associated with purpura. Mr. Ray has seen an eruption, "very like the roseoloid eruption of typhoid fever; there were no petechiæ, and the eruption was confined to the thorax, abdomen and back." Greenhow has seen erythema nodosum, in the course of dipththeria. Trousseau states, that the disease is frequently accompanied with an eruption of rupia simplex —albuminuria very commonly occurs, and Dr. Wade, of Birmingham, frequently saw instances of hæmaturia. The urine is frequently found to contain tube casts and renal epithelium. Wade states, that these tube casts are of three kinds, " small waxy casts, casts of similar size, but granular, and thirdly, ordinary epithelial casts." Wells gives an instance of genuine gangrene, as reported to him by Dr. Clark. Dr. Jacobi mentions that, in the course of thirty-two days, he diagnosticated, in the same case, " scarlatina, urticaria, measles and varioloid." Croup is the most frequent and most fatal complication of diphtheria; bronchitis and pneumonia frequently supervene; scarlet fever precedes, accompanies and succeeds diphtheria. We may classify the complications thus—croup, scarlet fever, tonsillitis, bronchitis, pericarditis, pneumonia, erysipelas, albuminuria, hæmaturia, hæmorrhage, purpura, measles, erythema nodosum, rupia simplex, urticaria, variola, varioloid, roseoloid eruptions, gangrene, etc. The most common complications are croup, scarlet fever, bronchitis, pneumonia, tonsillitis and albuminuria; the others are rare.

Convalescence.—The convalesence in this disease is most remarkable and peculiar. It is very slow, tedious, interrupted, frequently complicated with other diseases, treacherous, unreliable and protracted. We do not think it advisable, or necessary, to give cases to prove this, as such a course would (if demanded) be only adapted to a volume, and not to a paper of this kind. In convalescence from diphtheria, we have, at times, existing the traces of the original disease, its complications, and the incipient symptoms of diseases, which form the not infrequent sequels of diphtheria. The utmost care and caution should be bestowed at this time, for relapses are very common and very fatal. The slightest exercise or imprudence is frequently the cause of great danger and death. Exercise, when the resulting anæmia and prostration from the disease are marked, is attended with great danger. Many persons have thus caused a fatal termination by heart-clot or by a return of the disease, when quiet and rest, until strength was regained, would have insured a safe recovery. During convalescence, the urine is frequently loaded with lithates; the appetite is very deficient; the prostration extreme and characteristic; the nervous system (even when paralysis, amaurosis and other nervous disorders do not supervene) deeply and seriously affected, and the muscular power almost destroyed. Here " non progredi est regredi."

Recurrence of the Disease and its Sequelæ.—We have seen that in diphtheria, relapses are very frequent; it is no less true, that occurrence of the disease, is by no means uncommon. Cases where the disease has attacked the same person twice, are frequently occurring; sometimes the disease returns a third time and even a fourth. In the earliest epidemic of diphtheria, in New Jersey, the disease attacked the same person four times, in one year; the fourth attack proving fatal. The describer of this epidemic thus writes.—"I have frequently observed, that once having the disease is no security against a second attack. I have known the same person to have it four times a year, the last of which proved fatal. I have known numbers that passed through it, in the eruptive form in the Summer season, that have died of it in the succeeding Winter." Dr. Wynne states, that a persevering use of a tonic treatment he has found useful, in preventing a recurrence of the disease. The disease usually observes no tendency to recur at fixed periods; there is no periodicity generally manifested. Dr. M. H. Houston, of Richmond, Va., states that he has observed this phenomenon, and has successfully treated such cases, by the judicious administration of quinine. It recurs, from a three weeks interval, to intervals of many months in length. In some epidemics, relapses and recurrences have been manifested to an extent of twenty-five per cent. of all the cases attacked; this is, of course, higher than the usual percentage, which rarely exceeds ten per cent. "Guersant performed the operation for tracheotomy twice, in each of two children, after intervals, between the two attacks, of eleven and twenty-one months." It appears then, that there is usually no fixed interval, at which these recurrences are manifested. It may be said to extend from three weeks, to many months. Recurrences of diphtheria, unlike those of scarlet fever and some of the exanthemata, are usually more severe, than the first attack of the disease; the fatality, in such cases, being often very great. Many able observers have declared that an attack of scarlet fever, of diphtheria, or of many of the exanthemata, acted as a predisposing cause of an attack of diphtheria. With the exception of increased severity in the attack and the sequels, these cases present nothing of special importance.—The sequelæ of diphtheria are much more common now than formerly; indeed the early writers, on this subject, pay but a cursory attention to them. In recent years, they have been fully studied; Faure, Trousseau, Bouillon, Lagrange, Brettonneau, Blache, Gull, Kingsford, Sanderson, Greenhow, Reynolds, Wynne, Slade, Thayer and many others have devoted much time to their investigation.—A large monograph, by Dr. V. P. A. Maingault, deserves to be especially noticed in this connection. His reseaches on paralysis, as a sequel to diphtheria, are voluminous and interesting. Maingault's description of the first appearances and effects of this kind of paralysis, is graphic and masterly: "Two or three weeks after all throat affection has disappeared, the first symptoms of paralysis show themselves; they are developed slowly; the patients may even have made considerable progress towards recovery, before they occur. The first thing noticed is a paralytic affection of the soft palate, characterized by a difficulty of deglutition and a nasal speech; phenomena that may entirely disappear, when the general muscular weakness shows itself. In some patients, there is sudden emaciation. Vision becomes imperfect and even complete blindness may supervene. The strength fails gradually; formication occurs in the extremities, accompanied by more or less severe pains in the joints. Walking becomes more and more impracticable, until the upright position is impossible. The paraplegia is then complete.—The upper extremities share this weakness; the head becomes too heavy and sinks on the chest; the muscles of the trunk are incapable of sustaining the weight of the body. Strabismus, distortions of the face, dibbling, defective articulation and paralysis of the bladder and rectum also supervene. There is an entire absence of fever; the pulse is small and is reduced somtimes to fifty; at the same time, the heart's action is tumultuous and there are anæmic murmurs. With these and other symptoms of defective innervation, the intellect remains intact, but the mental powers are sluggish.—The disease may proceed to a fatal termination, or, if it terminates favorably, the patient's strength returns gradually, and a cure is effected in a period varying from two to eight months." This is of course the type of a severe and serious case. The most common form of paralysis is that of the velum palati; this is quite common and is seen in almost all epidemics. It almost invariably precedes other forms of paralysis. The sequelæ may thus be stated: Paralysis of the velum and tongue; general paralysis; paraplegia; hemiplegia (rare); paralysis of the bladder and rectum; strabismus; amaurosis; paralysis of the iris and ciliary muscles; otalgia; formication; numbness; mal-articulation; pyæmia;[*] spanæmia; anæmia; hydræmia; abscesses; diarrhœa; loss of taste and hearing. As in most nervous disorders, the alternations in the manifestations of the paralysis may be very great. Sometimes one limb is attacked, and becoming much improved, the paralysis is next exhibited in another, or perhaps in the muscles concerned in deglutition. This may be preceded by formication, numbness, tingling, etc., and frequently these anomalous sensations succeed the manifestations of paralysis. Dr. Cooper, of San Francisco, saw "many of his patients die suddenly from pyæmia." Anæmia, spanæmia and hydræmia, are the most invariable sequels of diphtheria. Dr. Condie, of Philadelphia, had seen abscesses of the tonsils and salivary glands and diarrhœa, as sequels of this disease. Dr. Jacobi has seen cases where, in addition to loss of hearing, seeing, tasting and smelling, impotency ensued. He has seen one case in which "intelligence suffered in an equal degree" with the senses of seeing, hearing, etc. Dr. James B. Reynolds, of New York City, has contributed a valuable article on "paralysis, consequent upon the poison of diphtheria." He presents the records of seventy-seven cases.

The Epidemiological Society of London, in the report on diphtheria, does not, strange to say, allude to its sequels, while Chomel, of France, and Dr. Bond, of New York, seem to have been familiar with paralysis, as a sequel to diphtheria.

Dr. Reynolds quotes an interesting case of an American lady, who, while suffering from diphtheritic paralysis, went from Paris to London; the damp climate of this last City made her worse, and on returning to Paris, she rapidly convalesced.

Sometimes the muscles of the heart are paralyzed, and death suddenly ensues. One of the incipient signs of approaching paralysis, is the inability to pronounce the labial consonants, and a marked nasal pronunciation. Dr. Reynolds states that Mr. Dixon, of the Ophthalmic Hospital, London, could, with the use of the ophthalmoscope, find no lesion in cases of diphtheritic amaurosis; albumen was, at times, present, and then absent; in the worst cases of paralysis it was not manifested.

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[*] Reported by Dr. Cooper, of San Francisco.

The intellect is very rarely affected in the sequels of diphtheria; Dr. Jacobi reports one case, and Dr. Ranney another; Dr. T. Gaillard Thomas reports a case, where there was much mental irritability manifested. Disturbance in the organ of hearing is comparatively rare. Impotency sometimes occurs. Occasionally the general paralysis is complete; it is often accompanied by a sense of coldness, and frequently by articular pain. We see cases both of myopia and presbyopia manifested, during the sequelæ of diphtheria. Dr. T. Gaillard Thomas, of New York City, reports an interesting case of myopia, attended with convergent strabismus, great muscular prostration, strongly marked paralysis of the velum palati and partial paralysis of the limbs. In the acute stage, he describes the fœtor of breath as having been so great, as to taint the entire atmosphere of the room. M. Maingault has described a typical case, which admirably delineates the course and history of diphtheritic paralysis; the details of the case afford a better conception of this peculiar condition, than could be possibly formed, from the best general description.

"Boy, æt. four years; living at home; of good constitution; large and well developed, and never having had any serious malady; was attacked with high fever, with extreme difficulty in swallowing, August 1st, 1858. Upon the third day, false membranes were observed upon the tonsils; there was little glandular enlargement, etc. The child was soon convalescing. Some days passed without anything particular to note, when suddenly the voice assumed a nasal tone, and liquids were ejected through the nose, while solids were swallowed without difficulty.—In spite of this complication, the little patient regained his strength; there was some appetite, and the digestion was good; little by little the nasal voice became less marked, and the deglutition of liquids easier. But in spite of a tonic regimen, and of assiduous attention, and though for fifteen days the throat was cured, yet the child became more and more feeble in the legs, falling frequently and walking with an unsteady and tottering step. This feebleness increased daily; soon the child could walk but a few steps, and only by holding on to the furniture; there was pallor and emaciation.

"September 7th.—The feebleness was so marked, that he could not stand upright, and if left without support, he would sink down in a mass; sitting, or reclining, it was with difficulty that he could move his legs. The skin was flaccid; anæsthesia was so complete, in the lower limbs, that they could be tickled and pricked, without the patient being conscious of it; upon every other part, sensation was normal.

"Later: Child easily moves the arms; no strabismus; face pale and a little bloated; appetite diminished, deglutition easy, and only at rare intervals do liquids return by the nose; soft palate contracts well; obstinate constipation; pulse sixty, feeble and compressible; no bruits in the vessels of the neck; urine does not contain albumen. (Iron, quinine; frictions with flannel, impregnated with vapour of benzoin; sulphur bath every two days.)

"September 16th—One month from the commencement of the paralysis.—In the lower limbs, the troubles of sensation and motion the same as stated, but the hands and arms seem to participate in the feebleness of the legs; there is some tremulousness; sensibility diminished; continue same treatment.

"September 22d.—Same weakness in the legs, but feebleness of the arms much increased; it is only with great difficulty that the patient can raise his arms to his head, using his hands with reluctance; he does not desire to play, and if he takes his play things, they immediately fall from his hands; he cannot feed himself.—The head reclines upon the chest; can be lifted, but immediately falls again. There is the most profound insensibility in the arms, back and chest; tickling and pricking cause no effect. Face is not affected; no strabismus; sight seemingly not affected; but little appetite; same obstinate constipation.

"October 2nd.—One month and a half. The state of the patient is a little better; the legs are less feeble; can stand upright and take a few steps; uses his hands somewhat easier, but no sensibility.

"October 10th.—Strength returning; can remain a long time upon his legs, but his walk is difficult, dragging his feet along the ground; the arms have recovered their action; the head is held up quite well, but insensibility persists. From this period, the troubles gradually diminished in intensity; in order to hasten recovery, electricity was used, but on account of the great alarm produced, it was renounced; sensibility obtuse, but contractility normal.—Convalescence continued; strength returning; walking better; emaciation continues and appetite poor; pulse fifty and feeble; no bruit in cervical vessels.

"November 24th—Over three months. Sensibility still obtuse in feet and hands; child can take long walks.

"Patient seen for the last time in the month of March, seven months from the commencement of the paralysis; pallor persists; embonpoint not yet returned; appetite capricious; easily fatigued; no symptom of paralysis; recovers."

We have avoided giving cases, on account of the space occupied by them, but this is so suggestive and graphic, that, with a few abbreviations and omissions, we have presented it. Of course it is not a type of the majority of convalescents, but only of those who suffered severely from paralysis; even then, the anæsthesia in this case is more than usual. Sometimes, the paralysis is more extended, and we have strabismus, distortions of the face, etc., and frequently the period of convalescence extended over a longer period of time. Dribbling of saliva, constipation, involuntary discharge of urine and fæces are sometimes manifested. The intestines sometimes suffer, and it is difficult to overcome the resulting constipation. Maingault records a case where no action of the bowels could be procured for twenty-three days. The genital organs and the power of virility are frequently affected most seriously, and this condition exists, long after all symptoms of paralysis have disappeared. The muscles of respiration are seldom affected, and those of the heart very rarely. Sometimes, there is hyperæsthesia in one part of the body, whilst anæsthesia exists in another. Again, we find neither entire hemiplegia, nor entire paraplegia, but partial examples of each, in the same patient; a right arm and a left leg, or vice versa, being simultaneously affected. Trousseau states that the paralysis is often erratic; moving from one part of the body to another. In diphtheritic paralysis, the prognosis is always favourable. In seventy-seven cases, examined by Dr. Reynolds, of New York City, there were only nine deaths. "Two by masses of meat entering the trachea; one from convulsions; one with kidney disease; one from starvation; one from apparent syncope, the result of depression." Albuminuria is often present in these cases; there are no peculiar symptoms or invariable results which characterize its presence, or mark its absence; when in large quantity in the acute stage of the disease, it is a grave symptom; in the convalescent condition, it more generally coincides in its presence with severe results; but not always. It does not always, as is claimed by many, coëxist with amaurosis. Anæsthesia has been so complete, that sparks of electricity have been drawn unconsciously, from the soles of the feet. "M. Trousseau was for a long time under the impression, that the loss of power was dependent on inflammation of the coats of the nerves supplying the parts affected, and was led to this conclusion from the fact, that the palate and pharynx are more affected, than the system generally; this view has been abandoned, and he now attributes the results observed, to the effect of the diphtheritic poison on the system, through the blood." A somewhat similar view has been advanced by Dr. Gull, of England. Finding, in one case, that the membranes of the brain and cord were in a state of suppurative inflammation, he suggested that the original seat of the disease being near the cervical portion of the spinal cord, the paralytic symptoms may arise, from an extension of the disease from the fauces to the cord. This view is not here advocated, yet it would be well to examine the cervical portion of the cord, in all cases, where death supervenes, after the occurrence of paralysis from diphtheria. The phenomena manifested are undoubtedly due, to the action of the diphtheritic poison upon the nervous system through the blood; were the positions advocated by Trousseau and Gull in the least tenable, we should have paralysis occurring during, or immediately after, the acute stage of the disease; or after cases, in which the throat had severely suffered. It is known that the facts in this connection are frequently the reverse of this; paralysis occurring many weeks, and sometimes months after the acute stage of disease; often, where the throat has scarcely suffered in any respect; and not at all, where the throat has suffered severely.

Dr. Whitney, of California, states that in the sequels of diphtheria, he has found the urine not only albuminous, "but containing blood corpuscles, fibrinous and epithelial casts and cells, and crystals of lithic acid."

Dr. Faure, of Paris, writes, "the legs can no longer carry the body; the arms lose their power; the soft palate dangles like a dead curtain; swallowing and even breathing become almost impossible; the pupils are dilated; vision much impaired; sensation diminished, sometimes lost, or replaced by formication; in some, parts of the body become œdematous, in others gangrenous; others are subjected to repeated faintings. Reason flashes through the dull stupidity and a wandering smile lights up now and then the vacant countenance." This continues until the health is slowly and gradually regained. Dr. Faure is the first, of the French Physicians who turned their attention to the sequelæ of diphtheria.—Dr. S. D. Gross, of Philadelphia, in an autograph letter, writes that he saw a case of diphtheritic paralysis which involved the motor nerves of the right side of the face and also of the lower and upper extremities, which were all in a state of anæsthesia." Dr. Kersey, in the Indiana epidemic, saw cases of "partial idiocy," as the result of diphtheria; this condition is sometimes seen, but, almost universally, mental torpor (which passes away, when convalescence is established) is mistaken for idiocy. Dr. Meranda, in the Ohio epidemic, saw cases of presbyopia. Cases have been seen in England, where, as a result, from diphtheria, the fingers and arms have been covered with blebs of serum. Graëfe, in Germany, and Jobert, in France, have described epidemics of diphtheria, where the chief sequel was ophthalmia. Greenhow has seen, as sequels, gastrodynia, dysentery, diarrhœa, general squinting, otalgia, deafness and abscess, with the varied and general manifestations of diphtheritic paralysis. Herrera, who described the Spanish epidemics of the seventeenth century, mentions that paralysis of the muscles of the throat was a frequent sequel. Sloughing of the tonsils and loss of the uvula and portions of the soft palate have been seen, but very rarely. Dr.

Morris, of Spaulding, England, saw one such case. Dr. Greenhow states, that he has never seen albuminuria as a sequel, but very commonly as a complication of diphtheria. Uræmia, he states, has never been observed, in connection with the albuminuria of diphtheria. It has never been seen in diphtheria, so far as our immediate experience extends. In all of the epidemics in England, anasarca has never been seen as a sequel of diphtheria, uncomplicated with scarlet fever. Aphonia is often seen. Dr. Gull has published, in the London Lancet, a case where there was total loss of power in the phrenic nerves and where the diaphragm was, consequently, unmoved in respiration ; the breathing was entirely thoracic ; there was blueness of the lips with tracheal rales; case ended fatally.—Trousseau mentions an instance, where a woman, immediately after parturition, was seized with diphtheria; on the tenth day she commenced convalescing; albumen was now seen in the urine; on the twenty-fifth day, liquids could not be taken, and the woman nearly strangled, in her efforts to swallow solids; about the fortieth day, improvement took place; on the fiftieth day, delirium and convulsions, as a sequel, ensued; under the use of musk this condition passed off; paralysis now complete, involving bladder and rectum; complete anæsthesia; under the use of electricity and syrup of sulphate of strychnia, improvement was again manifested; large quantity of albumen present, but no disturbance of vision; erratic paralysis, showing no important lesion of nervous centres; final recovery. Mr. Dixon, of the Ophthalmic Hospital, London, states that the impairment of vision is due to the loss of adjusting power or to paralysis of the ciliary muscles; in presbyopia, resulting from diphtheria, the difficulty will be removed by using low convex glasses; in myopia, thus resulting, concave glasses are to be used. (Mr. Dixon states, that presbyopia in the aged, when not the result of disease, is more frequently due to a loss of adjusting power, than to any change in the lens.) In diphtheritic presbyopia and myopia, the impairment of vision is due solely, or at least chiefly, to this loss of adjusting power, and can easily be corrected, by the use of the proper kind of glasses. These are the most common of the sequelæ of diphtheria, and indeed all, that we have regarded as sufficiently important to mention.

Prognosis.—Hippocrates tells us, "that the best Physician seems to be, he who knows how to know in advance," and the testimony of ages has proved both the truth and wisdom of the remark. The advice of the father of medicine, on this important subject, will never lose its value. "Examine the countenance of the patient, to see if the physiognomy is like that of a person in health, and especially, if it preserves its natural expression. This is its most favourable state, and the more it departs from it, the greater is the danger." In the simple form of diphtheria, where the constitutional disturbance is slight; the exudation circumscribed; where there is no headache and no croupal complication; where the patient is healthy and not recently the subject of some exanthematous disease; where there is a fair hygienic condition, both public and domestic; where the exudation is light-coloured, thin and clears off early and easily; where there is not much discharge from the nostrils, and not much fœtor of breath; where there is no bronchial, or pneumonic complication; where there is no albuminuria, or if present slight; where there is, particularly, an absence of hæmorrhage from the mucous surfaces, an absence of vomiting or diarrhœa; where there is not much swelling of the salivary glands; where there is but little dysphagia, no dyspnœa and no orthopnœa, the prognosis is usually good.

When the larynx escapes, the case should be closely watched, for under this condition, the patient's calmness and quietness may deceive the most experienced and vigilant. Trousseau, Brettonneau, Lemoine and others attach much importance to an escape of the nostrils from the exudation; in their experience, where the contrary is the case, the result is always doubtful. There is a form of dyspnœa which specially deserves mention here, for it may occur, when the danger is not as great, as might be supposed. Dyspnœa sometimes occurs in diphtheria, when the lungs, bronchiæ, trachea and larynx are totally uninjured. The nostrils in such cases, are plugged with a viscid matter, whilst the tonsils and uvula are much swollen, and while dyspnœa is manifested there is certainly nothing of the kind of danger, that ensues when the respiratory passages below the rima glottidis are implicated. When dyspnœa occurs, without the symptoms of croup, or the signs of bronchitis, or pneumonia, and where it is not evidently the result of a fatal prostration, it will be found almost invariably resulting from this condition of the nostrils, tonsils and uvula. Dr. Stephen Monckton, of England, has found that "a lax pupil and feeble pulse" betoken a state of great danger. The report of the Lancet Commission is, "that in simple diphtheria, the prognosis is favourable; in diphtheria with croupal symptoms, it is very unfavourable, and in malignant diphtheria it is most unfavourable." The prognosis, in diphtheria, should be guarded and only given with great care and reflection. The disease is so treacherous and danger so often lurks, where it is unseen and even unsuspected, that the Physician can not be too guarded in expressing an opinion as to the result. Such reservation, or reticence, in this disease, betokens wisdom and efficiency and not ignorance, or indecision. Patients frequently die, when to all appearances they are doing perfectly well. A child is playing listlessly about the room, complains of fatigue, lies down, and without any symptoms foreshadowing the result, passes calmly into the sleep of death. Dr. Barbour, in describing an epidemic at Falmouth, Ky., relates a case, "where a little boy of ten years of age, sat up and whittled a stick the most of the day and, in the evening, put on his coat and drew on his boots, a few moments before he died." Dr. Minot reports the case of Mr. Gardner, of Boston, who after an attack of diphtheria, during which he was not confined to bed, walked out with his attending Physician; "on returning to the house, he expressed a wish to lie down, and Dr. Adams accompanied him to his chamber; he had hardly thrown himself upon the bed, when he started up, in a paroxysm of suffocation, and fell back dead." Such cases, and a long list that might be given, should teach the Physician that, in diphtheria, reticence is the part of true wisdom.

Where in the sequel, paralysis ensues, the prognosis is favourable; in seventy-seven cases, reported by Dr. Reynolds, of New York City, only nine proved fatal; two of these died from masses of meat entering the larynx and one from starvation; so that six in seventy-seven is more properly the indication of the result. Age is a very material consideration, in determining the prognosis; the greatest number of deaths occur in children, and between the ages of one and six; next, between six and ten; after ten, the mortality is singularly and strikingly lessened.

Anæmic and scrofulous children are very liable to the disease, and it is, with them, particularly fatal. A strumous taint is very unfavourable. Dr. Jacobi states, in regard to the fatality of the disease, that in "five hundred cases, we have not lost more than thirty;" he mentions the case of a girl, of three years of age, recovering after the appearance of blood, pus and albumen in the urine; there were tubercles in the lungs. Dr. Jacobi states, that the pieces of membranous exudation which are at times discharged, and which cause a grave prognosis, when, to the surprise of the Physician, the patient recovers, will frequently be found to come from the posterior nares; his attention was called to this, by a Physician, who, during an attack of diphtheria, "brought up these cylindrical tubes," but found that they came from the nares. Dr. Greenhow states, that when the membranous exudation becomes thick, brown, or black, he has usually found the result unfavourable. (Mr. Coleman, of Wolverhampton, has found pain in the cardiac extremity of the stomach a fatal sympton.) In regard to albuminuria, it may be definitely stated that, although a grave symptom, at all times, it is not necessarily fatal. It is wanting, frequently, in severe cases; and largely manifested in many that recover. The condition marked by the supervention of purpura is always unfavourable. Delirium is exceedingly rare, but always an indication of great danger. Mr. West furnishes an interesting case, showing the treacherous character of convalescence, and the extreme liability of the Physician to give an incorrect and premature prognosis; and, most especially, where this is favourable. The case is that of a woman, who declined entering the hospital at Birmingham, but continued to attend, as an out-door patient, walking a mile daily, for this purpose. "The throat improved in appearance each day; but, notwithstanding this amendment, she became weaker, and returning home, tired, on the third day, she took some food and went to bed. She appeared very drowsy during the remainder of the day, was disinclined for exertion; refused nourishment and continued in a dozing condition, until morning, when she asked for breakfast. Whilst being lifted up to receive it, she fell back fainting and died." Dr. Greenhow, after giving the particulars of a case of diphtheria, shows, at its conclusion, how very suddenly and unexpectedly death sometimes makes its appearance: "22d; continues better in all respects; appetite returning. Notwithstanding my earnest recommendation yesterday, she was sitting on a sofa downstairs, at the time of my visit, and her friends could scarcely believe that danger was imminent. She died suddenly the same night." This was a case of a young girl, who, on the 15th of that month, seven days after her being attacked with diphtheria, had walked a distance of "nearly a mile" to see her Physician. From the fact that when paralysis ensues, it is usually erratic, the inference is, that the nervous centres have suffered no serious lesions.

The unfavorable symptoms, in diphtheria, are severe chill, followed by high fever, headache and vomiting; where the swelling of the salivary glands and the discharges from the nostrils are excessive; where the exudation is thick and dark coloured, attended with extreme fœtor of breath, and showing a disposition to extend; where croup, bronchitis, or pneumonia supervene; hæmorrhage from the mucous surfaces; purpura; excessive albuminuria; great swelling of the cervical glands; coolness of surface, with complaints of heat; obstinate diarrhœa; dyspnœa, depending on trouble below the rima glottidis; extensive membranous exudation, about the nostrils; petechiæ; extreme frequency of pulse; laxity of pupil; scarlatinal complication; where the exudation is tenacious and shows no disposition to exfoliate; where orthopnœa is manifested, with restlessness and many of the usual symptoms, preceding death.

Where the patient is under ten years of age; of scrofulous habit; the subject of an attact of scarlet fever, or of any of the exanthemata; where the hygienic condition, public, or domestic, is bad, etc., the prospect of recovery, with any of the conditions just specified, is still farther impaired. Of course, the reverse of these symptoms, or their absence, will induce a favourable prognosis.

Mortality.—The mortality, in this disease, is very varied; depending much on the character of the disease, whether malignant or non-malignant, and in a very great measure, upon the treatment adopted. If the disease is non-malignant, the mortality is slight under the worst circumstances, and if it is malignant, the mortality is very great, under circumstances the most favourable. Treatment in this disease, influences the mortality to a great degree, whether the disease be malignant or otherwise. Thus, an unfortunate Physician, at Chapelle Véroux, lost exactly sixty patients, in sixty cases, and another at Tunbridge Wells, in four hundred cases, did not lose one. Of course there may have been much difference in the type of the disease prevailing, but it is not reasonable to suppose, that the difference could have been indicated, in these results. There is one instance recorded, of the mortality in a Physician's practice, during the same epidemic, having been diminished one-half, by a change of treatment. This single fact is more expressive, than all the arguments that could be advanced. Where the sixty cases were all lost, the treatment was the same in all; bleeding, blisters, leeches, with the use of calomel, and purgatives. Where the cases were all saved, the treatment was exactly the opposite.—Three-fourths of the deaths are caused by the supervention of diphtheritic croup. The difference in the reported mortality is due, chiefly, to two causes: difference in type and difference in treatment. A true anti-phlogistic treatment will often bring, to a fatal termination, the mildest case of genuine diphtheria. In North Adams, Mass., there were eighty-five cases and no deaths; in West Stockbridge eighty-one cases and eight deaths; in Menomenee, Wis., one hundred and thirty-three cases and four deaths; in Orange, Conn., fourteen deaths in the first fifteen cases. In Albany, N. Y., there were two thousand cases and one hundred and eighty-eight deaths; in Edinboro, Dr. Creighton treated forty-five cases and lost five; in Providence, R. I., there were five deaths in eight cases; in Pittsfield, Mass., three deaths in six cases; in Petersfield, Eng., one death in every ten cases; in Lima, Peru, one in six; at Chateau Chinon, forty-five deaths in one hundred and fifty cases; at La Ferté-sur-Amance ten deaths, in one hundred and twenty cases; Tunbridge Wells, no deaths in four hundred cases; at Cache-Creek, sixteen cases and no deaths; Chapelle-Véroux, sixty deaths in sixty cases; Hopewell, Ohio, five in one hundred and twenty cases; New York City, thirty deaths in five hundred cases;* Milton, Ind., five deaths in eighty-four cases; New Carlisle, Ohio, seven deaths in one hundred cases; in South-Onandaga, ten deaths in eighty cases—with many other places, where the number of deaths has been given, but the proportion of recoveries omitted.—Of course these figures do not express the number of cases of diphtheria that have existed, at the places named, but the proportion of deaths occurring in the practice of respectable Physicians, in regard to this disease. It will be found, on examination, that no deductions whatever can be made from the statistics furnished, as the mortality in this disease varies interminably; depending on the type of the disease, its treatment and locality, etc.*

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*Dr. Jacobi.

Immediate cause of death.—The immediate cause of death, in diphtheria, in three-fourths of the cases, is attributed to the supervention of croup. Most of the statistics show, that this is about the proportion of cases destroyed, by the supervention of this disease.

Dr. Peacock, in an autograph letter, thus writes: "I believe the cause of death to be generally the constitutional and not the local condition." This is of course excellent authority, but the facts and statistics in this disease show, that this is an error; the patients in diphtheria do not often (that is proportionally,) die from the constitutional complications.

Dr. Cain, of Charleston, S. C., who has seen much of this disease, writes that "the immediate cause of death, in all the cases which have fallen under my observation, is asphyxia, from occlusion of the larger, or smaller air tubes." There can be no doubt, but that many deaths, that have been attributed to croup, were caused by this condition.

Gangrene of the throat has been at times, though rarely, a cause of death. Dr. Kersey, of Milton, Ind., Dr. Odriozala, of Lima, Peru, and a few others, record such cases.

Pneumonia, bronchitis and croup, are the most frequent complications of diphtheria, and consequently produce death, in a large number of cases; next to croup, these diseases should rank, as the proximate causes of death. Œdema of the lungs is mentioned, by Dr. Jacobi, as one of the causes of death in his cases. Asphyxia, from the exfoliation of the membranous exudation, about the rima glottidis, is another cause.

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*Mortality, 410 in 4,109 cases—being an average in all of these cases of 10 per cent.

Where tonsillitis, attended with the formation of abscess, supervenes, death is sometimes caused, by the sudden rupture of the abscess, and asphyxia produced, by the entrance of pus through the rima glottidis. Dr. Minot, of Boston, relates a case (Mr. Gardner's) of this kind. Dr. L. N. Beardsley, of Millford, Conn., and Dr. Reynolds, of New York City, give cases where death was caused by starvation, from implication of the œsophagus. Syncope, from nervous depression, convulsions, diseases of the kidney, have each been the immediate cause of death, in diphtheria. Dr. M. L. Linton, of St. Louis, Mo , writes, " most of the cases that I have seen terminated fatally, by throat symptoms." In the forty-five cases related by Dr. R. W. Crighton, of Chapel-en-le-Frith, nine died: six from asphyxia; three from asthenia. Asthenia is the most common cause of death, after the acute stage of the disease has passed: being the result of intense anæmia, or hydræmia; or from irrecoverable prostration of nervous influence, whether occurring primarily, or secondarily. Pyæmia has been mentioned as a cause of death in diphtheria. Blake, of California, states that "the most common, anatomical, cause of death is the enlargement of the cervical glands; this is also the opinion of Dr. Wooster, of that State. The intemperate use of food, when in a weak and exhausted condition, seems to have been the cause of several deaths; the shock, here, on one of the chief nervous centres, may explain such a result. It may possibly be only a coincidence, but many deaths are recorded as having taken place, just after the indiscreet use of food. Undue exertion (when prostrated) has been a proximate cause of death. Patients cannot be too carefully warned against the indiscreet use of food, or against undue exercise.

The depression from obstinate vomiting, from diarrhœa, from hæmorrhage, have all been the proximate cause of death. We would thus classify the causes which have, proximately, induced death—croup; pneumonia; bronchitis; membranous exudation extending into the trachea and bronchiæ; asphyxia from various causes, as exfoliation of membrane, or rupture of abscess, or implication of the nares and tonsils; asthenia; gangrene; pyæmia;

hæmorrhage; heart-clot; convulsions; syncope; Bright's disease; pericarditis; intemperate use of food, under prostration; undue exercise; diarrhœa, etc.

This disease has claimed many illustrious and prominent persons as its victims. Brettonneau regards the death of Josephine as due to diphtheria, and that of Washington has been attributed to the same cause; in recent years, it has caused the death of Senora Stéphanie, Queen of Portugal; MM. Gillette and Valleix, distinguished Physicians in France; Drs. Frick, of Baltimore; Cooke, of Brooklyn; Adams, of Boston, and others. The disease has been quite fatal, during the last few years, in Philadelphia, Cleveland, and many parts of Kentucky and Virginia.

Treatment.—The treatment of this disease is simple and is easily described; the indications being few and prominent. It may be divided into two forms: the constitutional and the local treatment. In the constitutional, we first endeavour to arrest the zymotic and septic changes, rapidly taking place in the blood, and then to keep the patient alive, by the most rigorous sustaining treatment possible, whilst the effects of the disease are either being developed, or are passing away. In the local treatment, the object is to destroy and circumscribe the membranous exudation; to prevent its extension; and to remove, in every way possible, the physical and sensible evils, resulting from its presence. In no disease is judicious treatment more important, in none is injudicious treatment more fatal and reprehensible. Let the anti-phlogistic treatment, in its early signification, be adopted, and the Physician who lost sixty patients in sixty cases, would not long be mentioned as the singular example of professional consistency and misfortune. The old lines, that were wont to bring the smile of approbation and satisfaction to the disciples of Galen, Sydenham, Gregory, and others, would, if adopted in diphtheria, be soon regarded as the death warrant, conveniently arranged in metre—

"He soon returned—his skill applied—
From the vein, flowed the crimson tide;
And as the folk behind him stand,
He thus declared his stern command:
At nine, these powders let him take;

At ten, this draught; the phial shake;
And you'll remember, at eleven,
Three of these pills, must then be given;
This course you'll carefully pursue,
And give, at twelve, the bolus, too;
If he should wander, or consciousness lack,
Clap this broad blister on his back;
And after he has had the blister,
Within an hour apply the clyster.
I must be gone—at three, or four,
I shall return, with something more."

Such treatment may appear astonishing and impossible, yet the history of the mortuary list, in diphtheria, shows that it is far from being unknown and unfamiliar.

Local treatment.—The local treatment of diphtheria is very simple; some prefer an escharotic, as nitrate of silver in solution, or in stick; the mineral acids either alone, or as used by Brettonneau, one part of hydrochloric acid to three parts of honey; others again use milder means, as insufflations of alum (reduced to an impalpable powder,) either simple or previously roasted; some again, exhaust the catalogue of stimulants, capsicum, turpentine, etc.; others find good results from the mild, or strong astringents, as vinegar, or tannin, or tincture of iodine, while a few use a simple disinfecting lotion, as the chloride of soda, lime or zinc; the chlorate of potassa in solution, or the mechanical mixture of levigated charcoal and water. We will, in this connection, insert a communication of practical interest, from Professor John T. Metcalfe, of New York City.

"In the treatment of diphtheria, I believe that all sound practitioners are agreed, that it is of prime importance to do every thing, calculated to nourish and sustain the patient, whilst administering such medicines, as tend to correct the spanæmia, so frequently, if not universally recognized, as one of its most striking features. In common with many others, I have relied mainly on the tincture of the sesquichoride of iron, for internal administration. Nor has my experience failed to convince me of its excellence. It has the superiority over the chlorate of potash, in not disagreeing with the stomach, when properly diluted, and of not producing the exhausting diarrhœa, which I have known to occasionally follow the use of the salt. My object, in addressing you this note, is not to speak of the general medication in diphtheria, so much as to call attention to the fact, that, in five cases, I have found great benefit, from a topical application, of which I have seen no published recommendation. In the Winter of 1859-'60, a Student, of the University College, suffered from an exceedingly severe attack of the disease. There were all the well marked constitutional symptoms, with swelling of the lateral cervical glands and abundant patches of exudation on the tonsils, uvula, roof of the mouth and posterior pharyngeal wall. This gentleman was a son of Dr. Webb, of Hempstead, Long Island. As a probably fatal prognosis had been made in the case, the young man's father had come to New York, bringing with him, a vial containing a mixture of the bromide of iodine, in mucilage, or syrup of gum arabic; two drops of the former to a fluid once of the vehicle. This he said, he had heard, was a good antiseptic, and might prove useful in his son's case, as there was the usual fœtid character of the breath. Drachm doses of the medicine were taken internally, at intervals of several hours, and with a camel's hair pencil, it was applied frequently to the patches of exudation. It certainly acted as a disinfectant; but it was followed by a remarkable change, in the appearance of the membranes. Within twenty-four hours, they had entirely broken down; disappearing in spots entirely, and leaving the mucous membrane red and smooth, where the white exudation had formerly existed. Within the next eighteen hours, the fauces and palate were entirely freed from all pellicular matter, and the patient subsequently recovered.

The next case, in which I used it, occurred in a lad, of thirteen, who had, two years previously, suffered severely from scarlet fever. The diphtherial exudation was extensive, the constitutional symptoms very grave, and the angina of the most marked type. To test the the remedy, in question, I applied it to the left tonsil, which was hypertrophied very considerably, and completely covered with exudation, having very much the appearance of white chamois skin soaked in water. In twelve hours, the edges commenced to loosen and, in twelve more, the whole mass was coughed out; leaving a very red and a bleeding surface, under its former place. This patch measured a line and a half in thickness and was an inch in length, by three quarters of an inch in breadth. Exudation had commenced to form on the uvula, when the application was made to the tonsil. It soon ceased to spread, and was but ephemeral. In the last case under my care, a girl of thirteen, whom I had attended seven years before, with well marked scarlatina, the exudation involved the tonsils, and spread to the uvula, after the third day.—The bromide of iodine at once checked the fœtor of breath, and, in twenty-four hours, caused a complete disappearance of membrane, both from the tonsils and uvula. I omit the details of the other cases, as they are not of such a character, as to make a different description necessary. The topical application consisted of four or five drops of the bromide of iodine, to the fluid ounce of gum syrup, well applied to the diphtherial patch every two hours.—There is nothing unpleasant to the taste, or in the smell of the tincture thus prepared, notwithstanding the very disagreeable nature, in both these respects of the pure liquid. It is well to continue its use, until the mucous membrane shall have resumed its normal appearance." As the bromide of iodine is not officinal, we subjoin the mode of its preparation, for those who are not able to procure it conveniently. Saturate an ethereal solution of bromine, with metallic iodine. The different works on chemistry and the ordinary pharmacopœas do not contain any notices of the bromide of iodine. Griffin, in his "Chemical Recreations," states that "bromides of the other metals may be procured, by the addition of hydrobromic acid to a solution of their salts." The method given will be found simple and practicable. Lugol's iodine caustic is as convenient and perhaps as efficient, as the bromide of iodine. It is an excellent disinfectant and produces an exfoliation of the membrane, just as readily. It may be used of full strength, or diluted, according to the judgment of the Physician. It is made, by adding to two ounces of water, an ounce each of metallic iodine and iodide of potassuim. It is not unpleasant to the patient; does not produce the ash-coloured marks, caused by the nitrate of silver; is very stringent and is an excellent disinfectant. The chloride of zinc will be found an excellent application, either to the fauces or the nostrils; it has not the disagreeable smell of some of the cholorides and is very efficient, as a disinfectant. For destroying the fœtor of breath, we know nothing more excellent, than the use of an ordinary charcoal troche. They can be constantly used, with none of the intervals, during which the patient and nurses are made to suffer from the absence of a disinfectant; they are always far more acceptable to the patient than gargles, lotions or injections; compounded with some favourite spice, they correct the existing fœtor and afford, in exchange, a pleasant aroma; and they are accessible to every one. We do not wish to give a detailed statement of the endless remedies, that have been used, either in the local, or constitutional treatment of diphtheria; such a course would be useless and, when completed, would be more of a curiosity, than an assistant to the reader. "The favourite prescriptions of favourite Physicians" may serve to give a useful hint, but fixed formulas are both unnecessary and injudicious; and each practioner had far better adjust the proportions, of prescribed remedies, to meet the exigencies, or peculiarities of each particular case.

The application of blisters to the throat, is not advisable in this disease; they rarely do good and frequently produce diphtheritic exudation on the skin, with painful and dangerous sloughing. This will be found true, in the use of blisters, on any part of the person, in this disease. Leeches are also unsafe; the hæmorrhage is difficult at times to control; is very prejudicial and injurious to the patient; and the leech bites, after being covered with diphtheritic exudation, frequently become foul and painful sores. The different poultices, and fomentations, and sinapisms and fumigations had best be avoided; they are "more honoured in the breach than the observance," and the patient will be just as safe and far more comfortable without them. Where the cervical glands are much swollen and the integuments hot, tense and painful, these applications do very little good; they generally dampen the bed or body-clothes of the patient, distract the attention of the attendants and annoy the patient. Where this swelling does not become absolutely painful, nothing is required. Where there is much tension, pain and heat, however, a mixture of equal parts of glycerin, tincture of opium and chloroform will be found useful—a little cologne, or some favourite perfume may be added, if desired. The lubricating and softening effect of the glycerin, with the anæsthetic effect of the laudanum and chloroform, will be found very acceptable to the patient. If heat is agreeable, by covering the application, a slight rubefacient effect will be produced; if cold is preferred, remove the covering from the part and the evaporation of the chloroform will sufficiently produce this effect. Unlimited use of ice may also be allowed; this will often be grateful to the patient, and is a valuable adjuvant in the treatment of the disease. Dr. A. Snead, of Richmond, Va., has used this remedy with much satisfaction and success. In regard to the membranous exudation on the fauces, there are many modes of treatment. If the lunar caustic be used, in stick, care should be taken that this does not break and a portion of it escape into the pharynx, and thus into the stomach. Fatal results have ensued, from carelessness in this respect. If the caustic in solution, is used, it is always painful and distressing to the patient; portions sometimes enter the glottis, or the nares, producing very unpleasant results. If this application were specially or specifically demanded, let it be applied of course, regardless of the pain or the consequences; but is it so demanded? Will not many other applications answer equally well, if not better? Again, the nitrate of silver produces, on the tissues affected, a characteristic effect, or deposit, which it is almost impossible to distinguish from the membranous exudation, and which renders it almost impracticable, to determine the comparative increase, or decrease of this exudation—a result which it is desirable to reach, at every inspection of the fauces. The prognosis and treatment are often influenced, by the conclusion which this inspection produces. Dr. Alonzo Clark, Dr. J. S. Wellford, of Richmond, Va., and others, think it unnecessary to apply the escharotic to the exudation, already formed, but only to circumscribe it, by drawing, with the escharotic, a circle around the diseased locality. Many of the French, English and American Physicians, however, think differently, and attach a direct importance to the destruction of the membrane itself. Dr. F. B. Watkins, of Richmond, Va., who has treated this disease, with the most gratifying results, has usually adopted this course. If there is any truth whatever, in the views taken, by MM. Bouchut, Jodin and others, in regard to this being a parasitic formation or in the declarations of Laycock, of Edinboro, that it is a fungus growth (the oidium albicans); or that it is, in part, an accumulation of microscopic algæ, etc., it is evident, that it can not be too completely destroyed. We do not so regard it, however, but consider the exudation a fibrinous mass. As it is certainly possible and conceivable, that sporules, algæ, fungi, etc., may occasionally be present, as there is no real harm in destroying the exudation and no important reason for not doing so but the avoidance of the silver deposit on the tissues, the annoyance, alarm, etc., the destruction of the whole membrane if attempted, should be rare, but complete. Rodet has discovered a mixture, which will always neutralize the syphilitic virus, when brought in contact with it, and yet not produce cauterization. It is usefully applied to the membranous exudation of diphtheria, and is thus made—

℞.—Aquæ Fluv., grs. xxxij.
Ferri Perchlorid.,
Acid Citric, } *a. a.* grs. iv.
Acid Hydrochlo.,

This may be applied, with a camel's hair pencil. The tearing away of the exudation, from the mucous tissue, is entirely useless, and frequently causes tedious and painful ulceration. There can be only one advantage gained by this removal, and that is, to lessen the chief cause of fœtor of breath and the unpleasant sensation, produced by the dangling of this mass about the fauces. The dragging away of the entire membrane, with forceps, leaving a sore, tender and bleeding surface, certainly, seems a most inexplicable proceeding. This only removes the chief manifestation of a certain pathological condition, and does not tend, in any way, to alter, ameliorate, or remove it. Where the membrane is evidently loose, it may be gently removed, but otherwise it is best to leave nature to produce the exfoliation. It should be recollected that a chief characteristic of this membrane is its repeated renewal and reformation.

When the nitrate of silver is used, in solution, the strength may vary from twenty to sixty grains of the salt, to an ounce of distilled water. When the case is seen early, before exudation has taken place, or, if so, to only a limited extent, it may be useful to apply the caustic; but, even then, iodine caustic, bromide of iodine, tincture of the sesquichloride of iron, or the perchloride of iron, may be as well used. The grey deposit of silver will often be found objectionable, and calculated to mislead. Whatever is used had best be so diluted, or weakened, as not to cause much pain to the patient. The medicines just named, when sufficiently diluted and sweetened with a little honey, or syrup, will be found to make useful and efficient gargles. In making these gargles, we may select from a long list of efficient agents: tannin, capsicum, myrrh, alum, borax, tincture of sesquichloride iron, the mineral acids, acetic acid, etc.; these may be variously mixed and changed and proportioned to meet the desire, or fancies of the practitioner. It will be found convenient, in applying different preparations to the fauces, with a pencil or brush, always to use an ordinary tongue depresser. When the swelling of the cervical glands and general tumefaction render this impracticable, the same agents may be applied, in a diluted form, by means of a syringe. When the membrane has entirely disappeared, it will be best to use some astringent application, or gargle for the fauces, as these parts are usually left in a lax and weak condition. The inhalations of the vapour of water, as this is poured upon "quick lime," have been used with much apparent benefit. If this vapour were "atomized" by some of the apparatus recently contrived for this purpose, good results might reasonably be anticipated. Lime juice has recently been used very happily, being given in large quantity, and still more recently fumigations with sulphur have been extravagantly eulogised.

Constitutional Treatment.—When called to see a case, if the disease has existed but a short time, if no purgative medicines have been taken, and if, above all, there is a clear and undeniable indication for it, a single dose of calomel, followed by some mild aperient may be judiciously given. If possible, it is best to avoid all depressing agents and agencies, for the chief feature of this disease is a tendency, under the best management, to prostration. Unless the use of mercury be clearly indicated, it had best be avoided rigidly; when it is used once, it is most advisable to abandon it, during the course of the disease. General and local depletion, vesiccatories, sinapisms, etc., should all be avoided. After the use of a single dose of calomel and an aperient, the patient's strength had best be husbanded in every possible way. As soon as the fever has disappeared, or begins to disappear, he had better be placed on one, or both of two agents which are peculiarly demanded, for his welfare; these are the tincture of the sesquichloride of iron and the chlorate of potassa. The scientific reason for giving chlorate of potassa in this disease, is that being a highly oxygenised salt, it tends to highly arterialize the blood, and thus to counteract the tendency to capillary stasis, with all the physical and physiological evils, resulting from a blood not sufficiently oxygenised and not sufficiently stimulating to ensure functional health and activity. Nitric acid would, in a measure, have the same effect, as this acid carries a large amount of oxygen, imperfectly held together. Both the salt and acid are good carriers of oxygen to the blood and tissues. The first remedy, originally proposed in this disease, by Dr. Heslop, of Birmingham, has by general consent been selected, as the chief and most reliable agent, in the treatment of this disease. In the prevention of spanæmia, anæmia, muscular and nervous weakness and depression, albuminuria and prostration, the salt seems to be especially applicable and efficient; when these conditions are manifested, it is equally reliable and valuable, for removing them.— When the chlorate of potash and the tincture of the sesquichloride of iron are used, the following will be found a very convenient formula, although any formula will answer—

℞.—Potassæ Chlorat., ʒj.
Acid Hydroch. dil., ʒij.
Ferri Sequichl. Tinct., ʒiij.
Aquæ Fluv., ℥xij.

S.—To take two tablespoonsful every hour.

Where the chlorate of potash causes diarrhœa, it had better be omitted. If, with good nourishment, the patient seems to be still losing strength, the iron may be doubled, in the prescription just given. Where, on the contrary, there is headache, fever, and restlessness, the iron had better be omitted, or diminished for a short time. In preparing the formula mentioned, add the acid to the salt; as soon as this assumes a yellow colour, and fumes of chlorine arise, add the water; by this means, the decomposition is arrested and the free chlorine held in solution.

Sometimes, either at the first visit, or afterwards, symptoms of croup are seen, and there is a universal disposition to give, for the relief of these, a prompt emetic. It would seem to be a wide-spread impression, that, during the act of vomiting, exudations, or membranes, are expelled from the larynx, or trachea ; the truth in regard to this is, that such a result is a physical impossibility. During the act of vomiting, the rima glottidis is firmly closed, and if this were not the case, vomiting would be impracticable. The mechanism of vomiting, when made the subject of reflection, demonstrates that the giving of emetics, for the expulsion of membranous exudations from the larynx, is not in accordance with the teachings of physiology. The mechanism of vomiting is as follows : a full inspiration is taken, the diaphragm is depressed, and the rima glottidis closed ; the abdominal muscles now contract and the stomach is compressed between these muscles and the depressed and firmly contracted diaphragm ; the rima glottidis is rigidly and firmly contracted, to maintain the diaphragm in this position, and the contents of the stomach are fully and thoroughly ejected. When the diaphragm descends, after a full inspiration, and the abdominal muscles are then contracted, it is manifest, that if the rima glottidis is not firmly closed, we shall have expiration simply, and not emesis. In addition to this, it is a well-known anatomical fact, that the lips of the glottis are covered by an exquisitely sensitive mucous membrane ; that the least irritation of this is immediately reflected and that the constrictor muscles (the arytenoid muscles) of the glottis, firmly contract, closing fully and firmly this aperture.

If the preceding mechanism of vomiting is incomplete, it is evident, as soon as the least portion of the contents of the stomach are brought into contact with this mucous membrane about the glottis, that the constrictor muscles, of this aperture, fully and efficiently close it. It will thus be seen, that it is impossible for emetics to cause, directly, the discharge of membranous exudations, from the larynx and trachea. The effects of these medicines may and do produce that condition of the system, where, from the resulting relaxed state of the tissues, this exudation may be loosened and afterwards expelled, by another act—that of coughing ; but if we have to rely upon coughing for the removal of these membranes, (as they cannot possibly be expelled by vomiting) is it not the best and proper course, to cause this lax and relaxed condition of the tissues, by a less violent and painful process; can it not be better, more constantly and persistently accomplished, by the use of expectorants? We leave the answer of this question to every one disposed to reason in regard to it.* If croupal symptoms supervene early, then it will be proper to treat them promptly; to commence the administration of mild and judicious expectorants, avoiding those, that are harsh and prostrating; to produce a derivative effect by a simple aperient; to make immediate use of the warm bath, and to institute inhalations, of the medicated vapour of lime-water, etc. If the patient continues to become worse, and the symptoms are threatening, the question of tracheotomy (promptly, if in any way used) must be immediately considered and solved. Without going into the laboured details of statistics, on this subject here, it will be proper to say, that the general testimony and result in France, England and America is prejudicial to its use. Success is very rare, and the fatality attending it very great. Trousseau, who has had a very large experience in this, his favourite operation, now declares, that there is one indication which entirely forbids its use and that is, where diphtheria is present, or there is even a diphtheritic tendency manifested. No one has had so large an experience in this operation, with special reference to this particular disease, and his testimony should certainly receive earnest consideration. Even where performed very early (as early as would be justifiable) the condition of the system, in diphtheria, is such, as to make tracheotomy almost certainly fatal. There is a total loss of constitutional elasticity and resiliency in this disease and under the most favourable circumstances, it is often difficult to resist, or prevent the constant tendency to a serious and persistent asthenia. It is a question which after all had best be determined, by the circumstances attending each particular case. It should be borne constantly in mind, that few cases where tracheotomy has been practised, under the most promising circumstances, have recovered. It has its enthusiastic advocates, chiefly in the French school, where, however scientific, progressive and energetic its members, history teaches that conservatism is a forgotten word, and that the disposition to startling display and attractive innovation are frequent and paramount. Still tracheotomy is the final chance of rescue from death; it can scarcely, under many circumstances, lessen the chances of recovery, and may rescue the patient from an inevitable death. Testimony and the record are against the operation, on the other hand; and it certainly adds to the patient's trials and suffering. These are the facts—each Practitioner must decide.

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* It is not denied, that the succussion of vomiting may detach membranous exudations; this is possible, but whenever exudations are thus detached, they can only be removed by coughing or violent expiration.

When this croupal condition exists, it has frequently been treated by catheterism of the larynx; this operation has been performed, to a great extent, in France, by M. Loiseau; even to the superseding of all other treatment. In addition to American experience with this subject, it will only be necessary to say, that the committee (MM. Béhier, Monneret, Roger, Seé and Barthez) appointed by the French Academy, reported very unfavorably, in regard to it.

Where the tonsils are enormously hypertrophied, and the uvula so enlarged, as to jointly produce dangerous dyspnœa, partial ablation may be adopted. Dr. Orton, of Binghampton, N. Y., who has seen a very large number of cases of diphtheria, writes, that the bi-chromate of potash has been very beneficially used by him, as an emetic, expectorant, and alterative; he writes very enthusiastically of this remedy, and seems to regard it, almost, as a specific. Whether calomel should be used when croupal symptoms supervenes, must be left to the judgment and experience of the Physician. It of course has its advocates: Brettonneau, Guersant, Rilliet, Barthez, and others, in France; Watson, Brown, Evanson, Maunsell, Tweedie, Connolly, in other sections of Europe; Wood, Condie, Meigs, and many in this country, are in favour of its use. It is proper to say here, that many prominent Physicians, of great experience, and deservedly held in high esteem, rely chiefly upon the use of calomel, not only when croup supervenes, but throughout the course of this disease. Dr. F. Deane, of Richmond, Va., and others, offer testimony in this connection, which all who are prudent, conscientious and just in practice, should impartially receive and accord to it the respect which a long experience eminently justifies. It should be carefully recollected, that though croup may supervene in diphtheria, it is not, in the least, (so far as the constitutional condition is concerned,) similar to idiopathic croup. In idiopathic croup, the blood has not been affected and poisoned; the disease is sthenic, the exudation is that of true croup, and the prostration is always secondary, or succeeding the dyspnœa and caused by it. In the croup, supervening in diphtheria, the blood has been poisoned; the disease is asthenic, the exudation is not that of idiopathic croup, and the prostration is primary; preceding the dyspnœa and, though increased, yet not caused by it. It seems strange that the same remedy should be applicable, under opposite circumstances. We should certainly use mercury, if at all, very guardedly in croup supervening after diphtheria has existed sufficiently long to induce its characteristic depression and prostration. It is proper to see that constipation is never allowed to exist, in diphtheria; either in the acute stage, or in convalescence; the tendency of the disease is to produce this condition, and it should always be prevented. Where the disease is slowly producing prostration and the fever is disappearing, (as will always be the case in uncomplicated diphtheria,) the most vigorous measures should be instituted, for sustaining the strength of the patient. The iron should be increased in quantity, and, where no tendency to diarrhœa exists, the chlorate of potash, also. Quinine alone, or in combination with iron, should be freely given. Animal broths, beef juice, eggs, alcoholic stimulants, as far as can possibly be borne, porter or ale, etc., should be plentifully administered. Where diarrhœa exists, port wine (with some vegetable astringent, kino, krameria, catechu, etc., if necessary,) should be substituted, for wine, brandy, or ale. All stimulants should be liberally used, and nutriment administered constantly. This is an important part of the treatment, and every precaution should be adopted, to see that it is faithfully and energetically carried out. The patient will, most commonly, manifest a disposition to avoid this part of the treatment—being without any appetite and indisposed, even, to the exertion of eating. Nutriment may be administered in small quantities, at short intervals, if the digestion is weak and much impaired; if not, the intervals may be longer and the quantity greater. Where tumefaction of the jaws, throat obstruction, etc., exist, the nutriment may be administered by injection; in part, if possible, or entirely, if necessary. It is well to recollect, that nutrition under such circumstances is very slight; that absorption is feeble and unreliable; and, if forced to have recourse to such an alternative, that the material should be freely and often used.

We come now to speak of albuminuria. This, when manifested, usually occurs in the early stages of the disease. It is necessary to recollect, that the tests for albumen, in urine, should be severally applied; or, that at least, two of the tests should be used. Heat alone, or nitric acid alone, will not be sufficient. When the urine has its normal acidity, it will not coägulate on the application of heat. In diphtheria the urine is frequently neutral, and has been so alkaline in character, as to change, to blue, a piece of litmus paper, that has been reddened by contact with an acid. When neutral or alkaline, heat may cause a cloudy precipitate; when there is no albumen present, this precipitate is composed of phosphates. Again, nitric acid may cause a precipitate of lithic acid, when there is no albumen present, and error again be the result. The better way will be to add the nitric acid to the urine, and then to apply heat; if albumen be present, it will be coägulated by the acid, but will not be dissolved by the heat; if albumen be not present, the cloudy precipitate of lithic acid, caused by the nitric acid, will be dissolved up, on the application of heat, and the urine will become again clear. M. Solon's work may be conveniently and profitably consulted in regard to the different causes, producing albuminous urine; it would be inappropriate, here, to go into an examination of these causes.

When albuminuria exists, the tincture of the sesquichloride of iron will be found to be the best remedy for removing, or controlling it; it will be found highly useful, also, where there is purpura; or a tendency to hæmorrhage. M. Aubrun claims to have cured thirty-five out of thirty-nine cases of diphtheria, by the internal use of the perchloride of iron. He gives two minims of the iron, in two drachms of water, every five minutes during the day, and every fifteen minutes through the night, with milk (and nothing else for nourishment) at libitum. "On the third day the membranes begin to soften and become detached." The sesquichloride, as ordinarily used, will accomplish all that preparations of iron can effect. A solution of the chlorate of potash, with a minim of hydrochloric acid, for every grain of the salt, may be used during the fever, or when the iron produces headache and restlessness.—Dr. James Bolton, of Richmond, Va., has used the muriate of ammonia with success and satisfaction. When symptoms of paralysis supervene, the different preparations of strychnia are used; these may be injected hypodermically; electricity should be locally applied, and tonic treatment generally should be immediately and persistently adopted. With this, may be instituted passive motion, and a daily routine of artificial exercise.

Time, and above all other things, change of air, must be relied upon for the removal of the nervous sequelæ of diphtheria. The most obstinate, and apparently hopeless cases recover promptly, under a change of climate and surrounding circumstances. When the acute stage has passed, there is every prospect of recovery; for the mortality, from the sequels of the disease, is quite limited. The resulting asthenia and anæmia are very conspicuous and persistent; lasting sometimes for more than a year. Let it be carefully recollected, that the slightest imprudence in exercise is frequently fatal; the recumbent position should be observed, until convalescence is fairly established and then slowly and gradually abandoned. Natural exercise should be cautiously resumed and fatigue rigidly avoided. Hyposulphite of soda, in five grain doses every three hours, is now a favourite treatment in Europe.

Autopsies.—The chief peculiarity, attending the autopsies in diphtheria, is the membranous deposit, found lining the air passages. Sometimes it is seen only in the larynx, but it is often found, extending from the rima glottidis, to the minute ramifications of the bronchiæ. Its appearance is quite varied; from a soft, thin, pultaceous mass, to a dense, thick and coriaceous membrane. It has been seen (in Charleston, S. C., such a specimen was presented to the Medical Society) plugging up the entire larynx and trachea.

The brain, heart, lungs and abdominal viscera are usually found healthy. The blood, thin, dark and liquid. Sometimes, the lungs exhibit the condition manifested in pneumonia; they have been seen to exhibit the changes, peculiar to each of the three stages. Evidences of bronchitis are also seen. These results are of course only seen where the disease has been complicated with some of the inflammatory affections of the lungs. Cases are examined, where no changes have taken place; death being the result of asthenia; the blood, however, even in such cases, is liquid and dark. Contrary to the declarations of M. Empis and others, that the exudation is not found, where there is no exposure to the air, M. Guersant states that the membranes have been found, by himself, in "the œsophagus, stomach and intestines." It will be recollected, that Dr. Goldsmith, of Oakland College, Mississippi, states that, in the epidemic of diphtheria, described by himself, the exudation had been found in the intestinal canal.

In the New Jersey epidemic, and in England, the subject was frequently covered with purple spots. Sometimes the kidneys are found deeply congested and again with the changes peculiar to Bright's disease. Dr. Oliver, of Boston, Mass., records a case, where "the left cavity of the pleura contained about two ounces of serum." The exudation is found in all of the mucous passages and tissues; the vulva; vagina; internal coat of the bladder; the œsophagus and intestines; the stomach; the entire auditory canal; * the fauces; nasal and respiratory passages; on the conjunctiva; the buccal cavity; on wounds, etc. In death from convulsions, the blood vessels of the brain have been found ruptured. In the fifty-two post mortem examinations, of Brettonneau, the exudation was found in the larynx and trachea, in fifty-one cases. Abscesses have been found in the tonsils, and also between the pharynx and vertebræ. Post-pharyngeal abscess, however, is rare. The membranous exudation is frequently found on the vocal cords, and this is unquestionably the most common cause, for the aphonia so often manifested, and for the croupal sounds frequently heard. Dr. Greenhow reports a few cases, where the kidneys, though apparently healthy, were deeply diseased, both in their cortical and medullary structures. The chief peculiarity, however, revealed in the autopsies of diphtheria is the varied manifestation, of its characteristic membrane.

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* Dr. Remington, Philadelphia, Penn.

Summary.—We have thus seen—

That diphtheria is a zymotic disease; peculiar, separate and specific.

That its pathology proves it to be a distinct disease.

That its anatomical and physiological relations appertain to no other disease.

That it is both epidemic and sporadic, in its prevalence.

That its etiology is obscure and in no respect understood.

That its symptoms and course render its diagnosis and differential diagnosis simple.

That it is often contagious; but not so always.

That its duration, in the acute stage, is from three days to three weeks, and when its peculiar sequelæ ensue, that the disease may persist for many months.

That hygienic influences seem not to affect the cause of the disease; but that they do affect its course and result.

That its relation to age is marked and direct; that children are its most frequent subjects and its most frequent victims.

That its complications are numerous and most of them dangerous.

That there is no direct relation, between the throat lesions and the result.

That it is peculiarly apt to recur; and that convalescence from its attacks, is slow, tedious, treacherous, relapsing and interrupted.

That there seem to be diseases, coincidently occurring in the lower animals, during its prevalence. That its sequelæ are peculiar and such as are not seen after any other disease.

That its mortality, when uncomplicated, is not serious; but that its frequent complications render the mortality severe.

That the chief cause of death is laryngeal implication, and next to this asthenia.

That the prognosis can seldom be satisfactorily made.

That, in no disease, does treatment more generally influence the result.

That the autopsies prove (what is indicated by the pathology, the anatomical peculiarities, the symptoms and the sequelæ) that diphtheria is a zymotic, distinct and specific disease.

After a careful analysis and patient tillage of this field; after freely consulting all familiar with its cultivation, we now offer, to our fellow-labourers, the results of the harvest: "Corn from the sheaves of science," with the stubble, produced to sustain it.

BIBLIOGRAPHY.

In an Essay of this kind, it would have been impracticable to give a "footnote" for each fact stated, or each authority cited.

We have preferred, in this manner, to acknowledge our obligation to those writers and gentlemen, whose labours and courtesies have afforded us valuable and constant assistance.

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INDEX—VOL. II.

PAGE
Preface........176
History........177
Name........262
Pathology........264
Anatomical Relations........376
Diagnosis........382
Symptoms........385
Etiology........394
Sporadic Prevalence........400
Epidemic Prevalence........400
Endemic Prevalence........401
Contagiousness........401
Incubation........409
Duration........410
Relation of Throat Lesions to Result........411
Relation of Hygienic Conditions to Result........490
City and Country Atmospheres........490
Effect of Age and Sex........491
Coincident Diseases in Brutes........492
Complications........493
Convalescence........496
Recurrence and Sequelæ........497
Prognosis........505
Mortality........509
Immediate cause of Death........511
Treatment........516
Autopsy........527
Summary........529
Bibliography........[illegible]

ECLECTIC DEPARTMENT.

"Floriferis ut Apes in Saltibus Omnia Limant."—LUCRET.

I.—CASES OF GUNSHOT INJURY REQUIRING LIGATION OF THE ARTERY. (From Reports in Surgeon-General's Office.) Collated by H. L. THOMAS, M. D., Richmond, Va.

Carotid.—Case 1.—B. C., company "E," Forty-Second Virginia regiment, wounded May 3, 1863, by a Minnie ball, passing through the larynx above the vocal chords and carrying away the epiglottis. The common carotid of the left side was ligated on the 12th for excessive arterial hæmorrhage. No chloroform could be administered. Patient fainted during the operation. On the morning of the 18th the right common carotid had to be ligated. Patient died thirty-eight hours after second operation. No brain symptoms supervened, and the heat of the head was retained. Autopsy: the hyoid artery of the left side was wounded; both carotids had been effectually secured.

Case 2.—J. W. J., company "E," Twenty-First Mississippi regiment; wounded May 3, 1863; ball entering left ear, fracturing the superior maxillary bones, and escaping at the right angle of the mouth. The wound began to slough on the 3d of June, and on the 5th, 6th and 7th hæmorrhage occurred. Carotid artery was tied on the 7th, and patient died same day.

Case 3.—R. K., company "C," Sixth Louisiana regiment; wounded July 3, 1863. Division of external carotid by Minnie ball. Common carotid ligated July 13, 1863. Left at Williamsport, Md.

Case 4.—M. H., aged 35. The lower jaw badly shattered, and the tongue injured. The right common carotid was ligated June 7th; hæmorrhage did not recur; patient died on the 8th.

Case 5.—J. H. McG., company "K," Twenty-Fourth Mississippi regiment; wounded September 26, 1863. Ball entered lower portion of the left mastoid process and lodged. Ligation of common carotid artery at upper third, Oct. 10th, 1863. Died on the 24th inst.

Case 6.—D. S., company "I," One hundred and First Indiana regiment; was wounded Sept. 20, 1863, by a round musket ball entering the face about an inch from the corner of the mouth, passing downwards and backwards, across the upper part of the neck, badly fracturing the lower jaw in its passage. The ball was extracted near transverse process of third cervical vertebra. The patient had hæmorrhage from the entrance wound, amounting to one quart on the 25th of September; hæmorrhage recurred again on the 30th. Three other hæmorrhages, of October 6th, 9th and 10th, respectively, so reduced the strength of the patient, that the common carotid artery was ligated. The ligature separated on the 29th of October. Recovery perfect.

Case 7.—M. W. S., wounded May 5, 1864; ball entered the left temple just above zygoma, ranging downwards and backwards beneath the ear and immediately under the mastoid process, and passing out through the soft parts of the neck. On the 12th of May secondary hæmorrhage supervened, which was controlled by pressure. It occurred from day to day until the 21st, when the common carotid was ligated. The hæmorrhage was controlled, but the condition of the patient was anæmic, and he died in twenty-four hours, evidently from the want of supply of blood to the brain.

Case 8.—E. F. L., company "G," Eighth Texas Cavalry, aged 24; was wounded May 9, 1864, by a Minnie ball in the face. Secondary hæmorrhage, to the extent of one pint, occurred on the 16th, apparently from wound in right side of the mouth. At six o'clock, P. M., there was a repetition of the hæmorrhage, amounting to about three pints, from same point. The right primitive carotid was ligated in the inferior triangle, in the usual way, and with very little additional loss of blood.—Chloroform was not used, and the patient bore the operation well.—The operation was successful to the extent of arresting the hæmorrhage, of which there was no recurrence. The patient died May 16th, 1864, with well marked cerebral symptoms.

Case 9.—G. W. N., company "K," Twelfth Georgia regiment; was wounded June 6, 1864, the ball entering posteriorly to left ear, passing upwards and forwards, and emerging at the infra-obital ridge, fracturing the zygoma. The wound was extensive, and the hæmorrhage considerable. The cavity was plugged after the removal of loose bone, but the hæmorrhage returned the next day, and the external carotid was ligated. Hæmorrhage recurred two days successively, in the last instance produced by patient's tearing off the dressings in his sleep. The patient died on the 19th.

Subclavian.—Case 1.—Corporal G. M. C., company "K," Thirteenth South Carolina regiment, aged 25; wounded July 3, 1863, the ball passing through upper part of the chest, wounding the lungs and the subclavian artery, where it passes between the clavicle and first rib. The subclavian was ligated on the inner side of the clavicle. The operation was successful; the patient was furloughed, with the wounds entirely healed, but with the left arm paralyzed.

Case 2.—J. H. K., company "D," Third Tennessee regiment; wounded July 12, 1863, the ball fracturing humerus, and primary amputation being performed through surgical neck. The stump was progressing well until July 20, when slight hæmorrhage occurred, which was controlled by pressure. Hæmorrhage recurred again on the 28th, and digital pressure was diligently applied up to Aug. 2d, when the hæmorrhage again took place more copiously than ever. Effort was then made to expose the bleeding vessel by tearing open the flaps, but the adhesions were too firm, and, the hæmorrhage proceeding from two points, it was determined to ligate the subclavian at its third division. The patient, under chloroform, bore the operation well, but required stimulation, having lost largely of blood from the stump, but none from the operation itself. The separated flaps reädhered, and the ligature came away on the fourth of September. The patient was furloughed the latter part of the month.

Case 3.—J. T. E., company "F," Fifth North Carolina regiment, aged 23; wounded July 2, 1863, the ball entering one and a half inches below the scapula, ranging forwards, but having no exit. There was great tumefaction and effusion about the shoulder, while the wound under the deltoid region was filled with clots of blood. Hæmorrhage supervened on the morning of the 16th, but was controlled by pressure and styptics; it occurred again the evening of the same day, and was controlled in like manner. On the morning of the 17th, very profuse hæmorrhage took place, which could only be controlled by pressure over the subclavian artery. Exploring the wound and failing to detect the bleeding vessel, it was determined to ligate the subclavian in its third division. The operation was performed without any untoward accident, but, while the hæmorrhage was lessened, the flow of blood could not be entirely arrested in the wound, even with the assistance of styptics; it was therefore decided to ligate also the suprascapular artery, which had been exposed in the operation; this being done, the hæmorrhage immediately ceased. The patient was put to bed with the arm warmly wadded, and at night there was sufficient temperature in the parts below the seat of ligature. The ligature from the suprascapular came away on the tenth day, and that from the subclavian on the thirteenth day. The patient got well without any bad symptom, and was furloughed on the 31st of August. The ball was not discovered.

Case 4.—W. S. A., company "H," Fourteenth Tennessee regiment; wounded Aug. 9, 1862. Arm amputated just below surgical neck.—Excessive hæmorrhage having supervened, the subclavian was ligated at usual point. Died January 26, 1863.

Case 5.—A. C. H., aged 19; wounded May 31, 1862. Ball passed through left shoulder, injuring the spine and producing paralysis. June 7—Ligation of subclavian artery in consequence of hæmorrhage. Died June 18.

Case 6.—J. W. K., company "C," Twenty-Ninth North Carolina regiment; wounded Sept. 19, 1863, the ball passing through shoulder joint, fracturing and detaching head of humerus. The ball entered near the coracoid process and passed out over the spine of the scapula. The accident was followed by a high degree of swelling and inflammation, extending from the seat of injury down the forearm; suppuration copious and offensive, with high irritative fever. On the 10th of October there was hæmorrhage from the anterior wound, which was arrested by pressure; on the 11th, the hæmorrhage recurred from both wounds, and the subclavian was ligated in its external third. There was no further hæmorrhage, but gangrene attacked the wound of operation on the 20th, and the patient died the next day.

Case 7.—Result fatal.

We give below a tabular statement of the rest of the cases of ligation including those detailed above :

Vessel.	*Cases.*	*Recovery.*	*Death.*	*Undetermined.*
Carotid	9	1	7	1
Subclavian	7	3	4	0
Axillary	7	2	5	0
Brachial	43	30	5	8
Arteries of Forearm	16	14	1	1
Femoral	53	24	24	5
Profunda	3	1	1	1
Popliteal	2	1	1	0
Arteries of the Leg	11	5	4	2
All others, including Facial, Temporal and Occipital	6	3	3	0
Total	157	84	55	18

In giving the above report, it is not pretended to include all the ligations performed, but simply all that have been reported. Medical officers can look over it and see to what an extent the deficiency lies at their own doors. That the bloody work through which the army has passed in four campaigns has demanded only 157 ligations, and many of these of only a trivial vessel, is an estimate which cannot be adopted. Certainly more operations of this character have been performed, for the number reported does not bear a respectable ratio in the chapter of gun-shot accidents. The presumption is, they have not been reported, and are sleeping in the casebooks of the hospitals. Gentlemen may see to what a desirable use full reports of each special branch of surgery may be put—namely, the laying of them before the Profession at large, and especially before those officers whose experience has not yet brought them in contact with such cases.

Even in many of the reports the data are so meagre as not to furnish any satisfactory conclusion with regard to the gravity of the case. Brevity is a very commendable feature in clinical reports, but should not be pushed to the extent of robbing the case of its interest. "Alexander died—Alexander was buried;" but there are some people who would be curious to know how he died and when he was buried ; and it is a lean obituary that does not give these small items. Some of the reports, indeed, seem to have been based upon the editorial warning that "funeral notices of more than——lines will be charged for as advertisements." But we are satisfied there is room enough in the Surgeon-General's office for reasonable and instructive post-obits and if they are transferred to the pages of this Journal, disquisitive platitude may be modestly retrenched, but deficient data cannot be supplied.

[*C. S. Med. and Surg. Journal.*

II. OZONE: ITS RELATIONS TO HEALTH AND DISEASE. An Essay which received the Fiske Fund Premium June, 1861. By E. S. GAILLARD, M. D., of Richmond, Va.

[CONCLUDED.]

We have seen that ozone is a direct stimulant to animal and vegetable life. We know that the most vital changes take place during the aëration of the blood in its passage through the lungs, and we can readily appreciate the effect which must be produced by the exposure of this fluid to a highly oxygenated gas. It is natural that the inhalation of ozone should have been first attempted, in producing the effect of this agent upon the animal economy. It must be recollected, however, that one 2000th part of ozone in an atmosphere would make it fatal to small animals; and very little more than this, fatal to man. In an atmosphere giving 10 as the register of the ozonometer, ozone exists in the proportion of one 10,000th part. The point of vital difficulty is to charge an atmosphere with a sanitary amount of ozone, and to avoid the possibility of this being exceeded. This can now be done with ease, safety and efficiency. It is possible to charge the atmosphere of a room to any required degree of the ozonometer, but it has, until recently, been found impracticable to avoid the diffusion of ozone to an unsafe degree. This can now be easily done. Its therapeutical use, by inhalation, has not been sufficiently practicable or safe to render its adoption advisable. Experiments are constantly being made, with a view of obviating these difficulties, and of introducing ozonized air into hospitals, ships in dangerous latitudes, and localities requiring a safe and efficient disinfectant. Ozonized oil of turpentine has frequently been used for these purposes, but there are objections to its odour and want of ozonic concentration, which must prevent its general introduction. Experiments of the most promising and interesting character in this connection are now being made by Dr. Richardson, of London. He uses ozone, as found in peroxide of hydrogen, formed by the action of hydrochloric acid on the peroxide of barium. Ozone and the peroxide of hydrogen, he considers one and the same thing. Ozone is thus introduced in a concentrated state into water, and we have therefore a simple and efficient mode of using this agent. It forms, in this condition, a powerful deodorizing lotion. As a disinfectant and deodorizer, it promises the best results. It is chiefly interesting, however, in its physiological and therapeutical relations, and we will for the present postpone its farther consideration.

It will be seen that ozone must soon become popularly known and appreciated for its hygienic properties. The air coming from the sea is highly ozonized; ozone being there largely formed, and but little consumed. The cheering effects of sea-air was known and advised by the earliest writers of the Profession, who, not appreciating the cause, yet by a vague compliance with the teachings of tradition, happily profited by its effects.

M. Schönbein has submitted to the Society of Naturalists at Bâle the results of many experiments in regard to the effect of ozonized oil of turpentine upon the animal economy. These experiments are certified by Professors Seitz and Fraas, of Munich. The ozonized oil of turpentine was thus prepared by them:—"The oil of turpentine is placed in white bottles, of which it fills only the quarter or half of each bottle, and is then freely exposed to sunlight. From time to time, each bottle is opened, so that the atmospheric air may have free ingress. The oil thus prepared has the smell and taste of peppermint oil; smelling disagreeably, tasting hot and bitter, and giving to the tongue a peculiar sensation of pain and cold." From experiments on animals, it is found that on the mucous membrane of the mouth and digestive organs, the ozonized oil acts like the simple oil, irritating and causing an increased flow of saliva and mucus. "It is rapidly absorbed; the pulse increases in fullness and frequency; the respirations are quickened, and, where large quantities are given, become painfully rapid." If the doses are frequently repeated, inflammation of the endocardium and pericardium ensues, with dangerous congestion of the lungs. Small doses act as excitants to the nervous system, but large doses cause paralysis, convulsions, stupor and death.

Seitz in his experiments with the ozonized oil of turpentine, discovered facts of therapeutic value. The simple and ozonized oils he found passed off through the kidneys and lungs; giving to the secretions of the kidney the usual violet odour, and, to the exhalations from the lungs, the smell of the ordinary oil. The ozonized oil was given, with good effect, in chronic cystitis and in incontinence of urine, in menorrhagia and hæmatemesis, in gout and rheumatism. In sciatica, it produced speedly relief, and was found very beneficial in vesical catarrh, hæmaturia, and many other vesical disorders. It has given marked relief in facial neuralgia. The dose, for these purposes, is from ten to thirty drops, in an emulsion or on sugar. Seitz especially recommends it in gout and rheumatism. According to the testimony of Schnepf and Abt, of Vienna, twenty to thirty drops of the ozonized oil are quite sufficient for arresting mortal hæmorrhages; this testimony is endorsed by Eschach and Knolz, of the same City. The ozonized oil relieves, very frequently, chronic discharges from the mucous passages. Dr. Richardson, in his use of the aqueous solution of ozone (peroxide of hydrogen in water) finds it "an antidote for the alkaloidal poisons;" that as an "external application to decomposing sores, as an internal remedy in fever, where the patient literally dies from deficient oxygen, and in diabetes, the medicine might be used with the very best promises of success. In the way of a pleasant, acid drink, one could give, to the typhus-stricken man, 100 cubic inches of active oxygen per hour. In diabetes, under the administration of the remedy, the quantity of sugar at once become less, and the excretion of urine decreased." Tetanus and other diseases are mentioned, but these facts are quite sufficient to awaken an interest in the therapeutic applications of the aqueous solution of ozone. It is given as prepared by Dr. Richardson and detailed in an early part of this essay ("charged with ten volumes of the peroxide"), in doses of from one to four fluid drachms in distilled water. It is given compatibly with all the mineral acids. From the effects of oxygen on albumen, fibrin, and on the blood, it would not be irrational to conclude that ozone should have a happy effect on the lymphatic, chlorotic and anæmic; on all of those who suffer from the devitalizing influences of imperfect sanguification. These results have not, until recently, been very successful or important, but after years of hope and disappointment, experiment and defeat, the sanguine expectations of many are about to be realized.

We have received from Dr. Theophilus Thompson, Physician to the Hospital for Consumption, London, the results of his observations on the medical administration of ozonized oils. The sanguine and the skeptical will each be interested in the simple record of his experience. Dr. Thompson, in his experiments, used oil ozonized after the method of Mr. Dugald Campbell. This does not sufficiently differ from the manner of preparing ozonized oil of turpentine, as recommended by Seitz and others, to render a detailed description necessary. It is only necessary to say, that the oils were first saturated with simple oxygen, and then exposed, for a long time, to the direct rays of the sun. One indication of the satisfactory progress of the process is the appearance, says Dr. Thompson, "of a peculiar acid, watery-looking fluid at the bottom of the vessel; it may also be mentioned, that the fact of the oils being charged with ozone can be rendered obvious by the usual tests; the bleaching properties which they possess and the action which they exert upon preparations of iodide of potassium and starch." We will give brief extracts from cases sent us, and a few conclusions which their history suggests.

CASE.—Male; laborer; æt. 33: phthisis in the first stage; dull percussion, prolonged expiratory murmur, wavy inspiration, increased vocal resonance on the right side. Admitted October 8th. Took salines for two days; then two drachms of ozonized sunflower oil, twice a day Pulse reduced in a few days from 104 to 92. Left hospital on Oct. 22d.

CASE.—Similar to last; weight seven stone, twelve and a quarter pounds. Took salines; then ozonized sunflower oil, three times a day. Pulse 118; in ten days fell to 102; in four days from this 86; weight increased one pound and a quarter. The ozonized oil becomes exhausted; in three days pulse rises to 108.

CASE.—Age, 8. Vomica of right lung, with tubercular deposition. Took cod-liver oil twice a day, oil being ozonized. In three days pulse fell from 120 to 100. Oil was then given three times a day; in less than a week, the pulse was reduced to 80.

CASE.—Age 28. Vomica and softened tubercle. Under the use of ozonized oils, pulse not influenced; 90 throughout.

CASE.—Tubercular deposit in both lungs, advanced to softening on one side. Admitted Sept. 22d; weigth nine stone and a half pounds. Took simple cod-liver oil to Dec. 10th; pulse 112. Ordered ozenized oil; pulse gradually fell to 76. On Jan. 6th, simple cod-liver oil resumed; pulse on the 13th, 108. Ozonized oils resumed; on 15th, 17th and 19th pulse fell to 88; then to 84. Ozonized oil withdrawn, and simple coco-oleine then given; pulse rose to 92. Ozonized coco-oleine given; pulse falls to 86.

CASE—Phthisis. Took simple cod-liver oil for three weeks; pulse 90. Ozonized oil given; pulse falls to 68.

CASE.—Under the use of ozonized oils pulse at 100; oils discontinued pulse rises to 110.

These cases, as is obvious, are not selected; the full effect and the want of effect in the treatment being both detailed. There are many more given by Dr. Thompson, but we wish to avoid detail. We have, for a faithful representation of the subject, given cases exhibiting the varied effects of the therapeutical administration of the ozonized oils. We have given the most unfavorable cases reported by Dr. Thompson, and have certainly selected some that were not the most faverable.

It is proper to give the testimony of Dr. Scott Alison, who had charge of the Hospital, during the temporary absence of Dr. Thompson. "Under my directions, only four of the patients had ozonized oil given in such a manner as to be likely to afford any result. Unfortunately, all of the patients were in the third stage of the disease, and no lasting benefit was experienced. In two cases, a remarkable reduction in the frequency of the pulse took place, during the use of the ozonized oil—the reduction amounting to about twenty-five beats—whilst the improvement could not be referred to any other cause. I attach some value to this observation, for I prescribed the oil, totally divested of all prejudice in its favor, and I have always been reluctant, on imperfect grounds, to refer results to the operation of medicines. If ozonized oil can reduce the rapidity of the circulation, a feature of great importance in phthisis, this remedy possesses a most valuable property—rendered still more valuable by its contributing to improve the general health."

Dr. Thompson observes, that in order to appreciate the evidence adduced, it is important to notice that in some of the patients the use of simple and ozonized oil was more than once alternated, with a marked and corresponding variation of effect. In one case, the alternation was made three times, and the result was so direct and remarkable as to make this particular case equivalent, in value, to three cases. It is impossible to review the history of these cases without being convinced that the administration of ozonized oils has a most remarkable tendency to reduce the frequency of the pulse, in addition to producing a decided improvement in the general health and condition of the consumptive patient. In fourteen of the cases, sent by Dr. Thompson, there are only two in which no effect of this kind was produced. In the majority of instances the improvement was marked, and must be attributed only to the ozone, and not to the oil, since it was manifested in patients who had taken cod-liver oil and other oils, without any reduction in the frequency of the pulse; in some, under the use of simple oils, the pulse was even accelerated, and under the administration of ozonized oil became immediately reduced. The effect on the pulse was nearly as distinct, when ozone was associated with cocoa-nut oil, or sunflower oil, as it was with the cod-liver oil. The oils first mentioned produce no effect unless associated with ozone.

The reduction in the frequency of the pulse, produced by the administration of ozonized oils, is indeed remarkable. It is usually observable in two or three days. Dr. Thompson states, in connection with this subject, that "a reduction of twenty beats was observed, in certain cases, in two, three, four and six days; in other instances, there was a reduction of twenty-four pulsations in fourteen days; of thirty-four pulsations in thirteen days; of thirty-six pulsations in twenty-two days; and of forty pulsations in eleven days." In one patient, the pulse fell to sixty; in most of the favourable cases, the reduction ceased when the normal standard was attained. This abstract, of Dr. Thompson, is of course taken from a large aggregate of cases. Such facts require no comment. We shall give none; for they demonstrate truths which cannot be misinterpreted or misunderstood.

We have thus concluded the hygienic and therapeutic relations of ozone. We have shown that it is a deodorizer, a disinfectant; a diuretic, diaphoretic, stimulant, antispasmodic, astringent and hæmostatic—a combination certainly rare and valuable, belonging to no other article that we can use, and demonstrating that any agent, thus presented to us, is worthy of the closest study and most general investigation. We will briefly consider the relations of ozone to physiology, before bringing our essay to a conclusion.

We find that an aqueous solution of ozone has the most striking effect upon the organic substances. Dr. Richardson states, "that blood freed from fibrin absorbs oxygen from the peroxide, and if it is venous blood it becomes arterial, with a rise in temperature.—Washed fibrin and cellular tissue, in the fresh state, evolve oxygen: albumen, urea, gelatin, fibrous membrane and skin produce no change. Grape, sugar, and indeed all the sugars, brought into contact with it, become decomposed and evolve carbonic acid. Starch undergoes the same modification. These observations refer to animal substances recently used, but when putrefaction has commenced, then the oxygen seems to act on all alike and to produce rapid disintegration. An interesting fact, relating to the peroxide, is that its oxodizing power is easily prevented by the presence of certain bodies, having a wide extension of names, but analogous characters. Ammonia, or vapour in solution, tobacco, hydrocyanic acid, solution of aconite, and, in short, all narcotics that are miscible with water, possess this neutralizing property; the permanency of the result being decided by the character of the agent employed. This establishes the great law, advanced by Snow, that narcotism is suspended oxidation, and that every substance, which on being introduced into animals produces narcotization, has the property of preventing the union of oxygen with other substances with which it is in contact, and for which it has an affinity. A weak solution of ozone oxydizes the blood, but this action can be stopped by the action of alkaloids and narcotics. Injected into the left side of the heart of an animal, it restores the irritability, but appears to have an opposite effect on the right side. Injected in the arteries immediately after death, it seems to restore to the muscles the power of contraction, on the application of an irritant. It suspends to a considerable extent cadaveric rigidity, and it reduces the spasmodic action excited by such bodies as ammonia and hydrocyanic acid."

Dr. Richardson deserves the thanks of the Profession for his interesting and valuable experiments in regard to the varied properties belonging to the aqueous solution of ozone. With a supply of pure peroxide of barium, any Physician can manufacture his aqueous solution of ozone, and administer it, with as little difficulty as attends the solution of quinine, morphine, or any similar articles of the Dispensatory. Messrs. Bullock & Reynolds, Pharmaceutists, of London, are now preparing the peroxide of barium for general use, and with this we can make every hygienic or therapeutic application of ozone that may be desired. After for many years measuring the amount of atmospheric ozone with the ozonoscope, examining its effects and testing its properties, we are at last enabled to offer an artificial preparation of this agent, for the general use of the Profession. We have a perfect ozonoscope; we can certainly now prepare perfect and uniform ozonometers; and we have finally an efficient and always accessible preparation of the agent itself.—The field is all ready; the instruments are prepared: we ask, now, that willing labourers shall come and contribute to the harvest.—With a prepared and fruitful field, with perfect instruments for its tillage, competent workmen have only to unite to secure a harvest that shall be ample reward for past and future labours.

Ozone has received the most enthusiastic attention from the savans of Europe; the list of observers is a long one, and exhibits some of the most familiar and distinguished names known to science. We find, in this catalogue, the names of Williamson, Marignac, De La Rive, Faraday; Schönbein, at Bâle; Wolf, at Berne; Simonin, Sr., and Simonin, Jr., at Nancy; Boeckel, Sr., and Boeckel, Jr., at Strasburg; Biliiard, at Corbigny; Robert, at Neudorff; Bérigny and Silbermann, at Paris; Seitz, Slechner, Schnepf, Abt, Eschach, and Knolz, at Vienna; Pourian, at Saulsaic; Decharmes, at Amiens; Grellois, at Constantinople; and very many others. The subject is studied at Athens and Algiers; throughout France, England Germany, Italy, Austria and the larger countries of the Eastern Continent. Results and tables are published at Paris, Munich, Strasburg, Berlin, Vienna, and wherever science is admired and appreciated in the olden country.

What shall we say of America? What can we say? Near Montreal, Canada East, Smallwood quietly but industriously pursues his labours. Capt. Pope, U. S. Army, has made many and most valuable observations. With two, or perhaps three other names, the American list is ended. The Smithsonian Institute is, we believe, about to generally investigate the subject, but has, so far, almost entirely neglected it. Extensive in its ramifications, meritorious and efficient in all that it undertakes, it is to be hoped that this Institution will soon enter the field. "The wise men of the East" have done their duty; those of the West are lamentably recreant. In America, this subject is almost ignored, if not unnoticed; it forms the exception to the interest, study and investigation usually here bestowed upon subjects of scientific and practical import.—Usually every new light which appears in the horizon of any science, if not increased here, is at least faithfully reflected. Why is it that the American Profession, characterized by its enthusiasm in the study and elucidation of scientific subjects, almost so universally ignores this agent; an agent so conspicuously active and efficient in the fields of pathology, therapeutics and hygiene? Why refuse to be co-labourers with those distinguished philosophers of the olden world, who leave acts as epitaphs and works for monuments?

Where the nature and properties of an agent are to be farther elucidated, by a long-continued and diversified series of atmospheric tests, it is at least reasonable to expect that the American Profession could render the most valuable aid. Scattered, as are its representatives, over the greater part of an entire continent, they can always contribute much that is interesting, and beyond doubt much that is important and original. The subject is no longer a chemical one in its characteristics, relation and attributes, but one of the most simple and practical character. To a nation whose distinguishing peculiarity is a study and culture of the practical, this subject certainly offers every such attraction. Its habitat is the atmoshphere, and who should more appropriately seek and examine it, than those whose country represents the type of almost every zone, the illustration of each particular climate?

We have completed our subject.

We present these pages to the Profession with the desire and hope that its representatives will see the importance and value of the interesting agent which forms their subject; that, by a united action, it may derive its chief elucidation as happily from the Western, as it did its birth from the Eastern Continent.

Authorities upon the Subject of Ozone.

Memoranda of Society of Natural History, at Bale. Journal of Practical Chemistry. Annals of Poggendorff. Archives of Electricity. Annals of Liebig. Silliman's Journal. Braithwaite's Retrospect. Ranking's Abstract. Scientific Annuals. London Lancet Files. L'Oxygène Electrisè, Par H. Scoutetten. European and American Medical and Scientific Journals. Writings of Graham. Monographs, Researches, Letters and Tables of Schönbein, Boeckel Sr. Boeckel Jr., Williamson, Faraday, Richardson, Marignac De la Rive, Frèmy, Becquerel, Simonin Sr., Simonin Jr., Osann, Millon, Reiset, Baumertz, Marchant, Berzelius, Langlois, Seitz, Abt, Decharmes, Pourian, Grellois, Griffin, Boussingault, Bèrigny, Wolf, Braconnot, Pelouze, Van Marum, Eschach, Knolz, Billiard, Slechner, Robert, Silbermann, Schnepf, Dutrochet, Shübler, Liebig, Fraas, Bergmann, Heller Banal, Smallwood, Pope, Gregory and many others. The names given represent those who have prominently identified themselves with this subject.

CLINICAL LECTURES.

"Ex Principiis, nascitur probabilitas; ex factis, vero veritas."

CLINICAL NOTES OF CASES TREATED IN DIFFERENT HOSPITALS OF THE LATE CONFEDERATE STATES—CONTINUED. By JAMES M. HOLLOWAY, M. D., Professor of Physiology, University of Louisville, Ky. [From private Note-Book.]

Case 13.—C. S. Lumpkin Hospital, Covington, Ga.—I. H., private, Co. C, 53rd Alabama Regiment, farmer, aged 24 years, health good; wounded Nov. 25, 1864, at the battle of Mission Ridge. Minnie ball wound of left hand; entrance on palmar aspect, between first and second metarcarpals, near carpal ends; lodged under skin on dorsum, near ulnar side of meta-carpophalangeal joint of thumb. Ball extracted shortly after receipt of injury. Was sent to rear by rail on 28th inst., reaching Hospital on evening of the next day. Hæmorrhage occurred on morning of 27th instant, and recurred at intervals throughout the trip; on reaching the Hospital, he was nearly pulseless.

Diagnosis.—Intermediary hæmorrhage from deep palmar arch.

Nov. 29th.—Dr. H——n, ligated left brachial artery in its middle third, and carefully cleansed and dressed wound in hand. Pulse at the wrist beat full and strong eight hours afterwards. Severe inflammation of the whole hand followed; treated by cold water applications. Hæmorrhage did not recur; was transferred to Lumpkin Hospital, forty miles distant, Jan. 26, 1864. At that date inflammation of the hand and forearm still existed; pain severe; a palmar abscess formed, requiring free incision; the wrist joint has become anchylosed. Is recovering from a mild attack of erysipelas, extending along the arm and neck to the face.

April 9th.—Possessed of a powerful constitution, he has endured an unusual amount of suffering, and, at this date, is walking about the ward; the citatrices in hand have recently begun to ulcerate, and have already destroyed the web between index finger and thumb. Pain in the hand has been, at times, so severe as to resist all agents employed for relief, not omitting the endermic use of morphia.

April 16th.—Ulceration spreading; red line extends along flexer aspect of arm to axilla; hand œdematous; not painful under pressure; tension and long standing inflammation have destroyed vitality of tissues. Ordered charcoal and cinchona poultice for cleansing and stimulant effects.

20th.—Ulceration has been followed by sloughing with constitutional disturbance; surrounding tissue red, swollen and sensitive. Slight arterial hæmorrhage occurred this morning; countenance anxious and pulse irritable; ordered strong nitric acid to wound; to take full doses tr. ferri chlo. and chlorate of potassa; generous diet and stimulants.

21st.—Neglected to take iron and potassa chlorat. yesterday; another slight hæmorrhage this morning; cleansed wound of clots and slough and dressed with charpie steeped in turpentine; healthy action seen at bottom of wound.

24th.—A profuse hæmorrhage at daylight this morning; another at 10, A. M. Sloughing has extended over thumb and invaded meta-carpo-phalangeal joint. Wound cleansed and filled with persulphate of iron in powder. Applied retentive bandage, and elevated the hand. Ordered one gr. opium every two hours; full diet and stimulants.

29th.—Healthy action is restored and granulations are filling cavity. The persulphate of iron has formed a firm plug and is being gradually loosened and forced upwards.

May 1st.—No more hæmorrhage; wound in good condition and general health much improved.

Note.—Ligation of brachial artery in this case was unnecessary.—That it exercised no control over the hæmorrhage is evident; for the distinctness of the pulse at the wrist in eight hours forces the conclusion, that either the collateral circulation was speedily established or the artery bifurcated in the upper third of the arm, and only one, of the branches was ligated.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

ROME, October, 1866.

The grandeur and magnificence of the countless noble monuments, and of the sublime inspirations of genius, which meet the eye, and fascinate the gaze, in this Capital, suggest at once the question, where such luxury has been expended upon material comfort, and where so much has been done for intellectual culture, what provision has been made for the wants and for the temporal necessities of the poor and suffering? It is with a feeling of joy, that in the centre of the Christian world, religion beneath the ample mantle of charity, is found at work, with a liberality which at once places Rome in the first rank amongst European Cities, for the number of its benevolent institutions. And here, it is appropriate to pay a feeble tribute to the munificence of the present Pontiff, whose constant care and attention have ever been directed towards developing and extending the sphere of utility of those establishments, which are the glory of his reign and the honour of the City.

It has been my good fortune to meet with Dr. Valerj, Professor of Clinical Medicine at the University of Rome, and in the following lines I will endeavour to convey, briefly, the substance of the communications this gentleman has had the kindness to make upon subjects likely to interest Professional readers. A word about the University, to which Dr. Valerj is attached, and which was founded in 1244, by Pope Innocent IV. It is called "La Sapienza," from the inscription, "Initium Sapientiæ timor Domini," which is to be seen over an entrance to the building. At first it was intended only for the teaching of canon and civil law, but the different academic departments, were added by successive Popes, and at present the University is composed of the schools of Theology, Canon and Civil Law, Medicine and Surgery, Philosophy and the higher branches of Mathematics, and finally, there is a division for philosophical studies. The Professors are forty-nine in number; seventeen compose the board of the Medical School. The lectures are all gratuitous, the Professors receiving from the government a yearly salary of about four hundred dollars. Cardinal Alfieri and other prelates, have the general direction of the University. The conditions of admission to the different schools being the same for all, I will select the Medical department as an illustration. To be permitted to follow the lectures, candidates must present certificates of having acquired the Latin and Italian languages, as well as of having applied themselves for two years to the study of mental and natural philosophy and mathematics. The Professors adopt the distribution generally existing elsewhere, and the term of studies is fixed at six years, four of which are devoted to theory, and two to practice. The students who devote their attention chiefly to surgery, at the expiration of three years, are required to follow clinical lectures upon the practice of medicine, until the fifth annual term, when the study of pharmacy becomes added to the other obligatory courses. Students of Medicine do not until the fourth year attend bedside lectures upon surgery, to which in the next session they join obstetrical practice. The whole amount of fees required for the full course, whether of Medicine or of Surgery, reaching the figure of eighty scudi, (a scudo is equivalent to one dollar,) attendance upon the University may almost be called gratuitous. An examination closes each year's studies, failure to pass which, entails the loss of the last scholastic term which has to be recommenced. In former years there were, on an average, one hundred students—of late, the number has decreased, and in 1865–'66 there were only thirty-five. This falling off in the attendance is accounted for by the fact, that the Pontifical dominions have become recently less extensive, and that some of the Universities in the kingdom of Italy, not requiring a thorough course, have increased the number of their students, to the detriment of Rome.

In the way of climate, Rome offers many advantages to invalids. The Winters are, in general, mild, notwithstanding the prevalence of the North wind, and it rarely happens that a day passes without affording a few pleasant hours for a stroll or a drive. This peculiarity, combined with the temperature, renders residence here beneficial to persons suffering from pulmonary complaints, especially in the early stages of the disease. It is usually remarked that the symptoms lessen in intensity, and the general health improves in consequence. What is observed, however, for tubercular affections at the outset, no longer receives confirmation, when the malady has reached the third period, and when an inflammatory reäction, accompanied by fever, exists. Then the climate is prejudicial, and the impulse towards a fatal termination appears to receive increased activity.

Variola is a disease of uncommon occurrence, and the cases observed, are frequently discovered to have originated in the neighbouring Towns. This, as well as the other eruptive fevers, are not attended, as a rule, by very alarming symptoms, and convalescence makes rapid progress. Typhus fever is almost unknown, though a certain form, attended by nervous manifestations, is occasionally noted. The cause has been traced to miasmatic or other pestilential influences, with which, unfortunately, the surrounding country abounds. This leads to some remarks upon the disease which has given Rome so bad a name amongst travellers, and which, like the yellow fever, on portions of the American seaboard, frightens away numbers annually. What is called the Roman fever, is simply the intermittent, due to the existence of animal and vegetable fermentation in the mournful campagna. It is the ordinary swamp fever, so common in all marshy districts, and presents no characteristic signs which justify the title of Roman. Here, as elsewhere, the preparations of bark are a sovereign specific, the administration of which, at the proper moment, and in sufficient doses, is always followed by relief. Every one is acquainted, at least by hearsay, with the desolate tract of country, which for miles forms the approach to Rome, and at certain points, overleaping the walls, seems to select domicile within the very City. Here lies the focus of the disease, amidst the mementoes of a past age, where gigantic ruins, conspicuous amongst which, stand the time defying aqueducts, attest the former magnificence of the "Campagna." To sleep for a single night in portions of this dreary district, is sufficient, in many instances, to develop in this fever a a marked tenacity. Strange, though it may appear, residence in this tainted atmosphere loses, to a great extent, its dangers, where several persons inhabit the same house, or even if the precaution of kindling a fire at night be taken.* It has been remarked, that the infection does not spread to localities around which a wall has been built, and that the number of its victims lessens in Towns where the streets have been paved.* The fever is generally felt in Rome from the end of June to the first rainy days in October, at which period the City receives new life from the return of those, amongst its inhabitants, who yearly leave for more healthy resorts during the heat of Summer. The filthy Ghetto, with its narrow streets, and unclean population, offers a proof of the good result of a crowded neighbourhood, for in this quarter of the City, the malaria is unknown, whilst it annually hangs over the more modern, and by far better aired environs of the Pincian hill. What obtains in the Ghetto, in connection with intermittent fevers, has also been remarked to be the case at moments when the cholera was desolating other portions of Rome. This is hard to account for in a satisfactory manner, as the general opinion is, that the ravages of disease are more terrible, in places, where ventilation is insufficient, and where cleanliness is neglected. The tertian ague is the most common form assumed by the malady, but is promptly treated, and this, from the simple reason that the sufferers know what is the remedy, and also, how serious it may prove to delay following medical advice. Still I have seen here, in the hospitals, some very well marked quartan manifestations, accompanied by intense visceral congestion and hypertrophy. I learn too, that Bright's disease of the kidneys is not infrequent, and finds an explanation in the intense congestions these organs undergo, when the ague has been permitted to take deep root.

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* Demonstrating a malarial etiology. (Ed.)

Dr. Valerj tells me that in a practice of twenty-five years, he has not met with a single epidemic of puerperal fever, and that the sporadic cases, which at times occur, do not possess the same gravity which furnishes such painful results in other large capitals. Difficult accouchements are rare, from the fact that the women are usually well formed, and present ample dimensions of the pelvis. Syphilis is not uncommon, and its influence has been on the increase, since the French occupation, to such an extent, that it is at present by no means rare to find females of thirteen or fourteen years laboring under unmistakable symptoms of this loathsome disease.

The principal hospitals are those entitled "Santo Spirito," "Santa Maria della Consolazione," "Santissimo Salvatore," "San Giovanni di Calabita," "San Giacomo," "Santa Trinita de Pellegrini," "San Gallicano," "San Michele," "Santa Maria degli Angeli," "San Rocco," besides smaller establishments maintained by different nations as mentioned above. I have, through the kindness of Dr. Valerj, and other persons, obtained admission into the principal institutions amongst the foregoing, and remarked, that in general, the wards are well ventilated, cleanly kept, and abundantly supplied with water. This last observation holds good for the whole City, as any one who has visited Rome will doubtless have noticed. The thirteen large fountains in the different public squares, and the countless number of smaller contributions to the comfort of the inhabitants, bear witness to the deserved importance given to this branch of public works by the Roman authorities. As I have found to be the case in other Cities of Italy, the wards in the hospitals here converge towards a central point, on which stands an altar erected beneath a cupola. This arrangement impresses favourably, one who, from the centre of the cross thus formed, is enabled to take in at a glance the long and symmetrical rows of beds, and appreciate the ventilation afforded by the lofty ceilings.

In Rome there are hospitals for almost every class of sufferers, and the Spaniards and Portuguese, as well as several other nations, have places of refuge for their sick and destitute countrymen. These institutions are, generally speaking, conducted by religious orders of men and women, as far as attendance upon the patient is concerned, the financial affairs being entrusted to a board of directors. Here, as in every other centre of distress and misery, the noble Sisters of Charity are at hand, gliding from bed to bed like angels of mercy, whispering thoughts of hope and breathing words of consolation; proving themselves to be the worthy offspring of that virtue whence comes their name.

The after-thought, however, soon arises, that the collecting together such numbers of sick must be productive of evil results, should contagious disorders appear in the building. I was particularly struck with this idea at "Santo Spirito," where I was shown a ward containing four hundred patients. The beds were three deep on each side of a passage, to permit circulation from one extremity to the other of this large hall.

A few lines on the species of succour, to be obtained from the various sources enumerated above, may not be out of place. The hospital of "Santo Spirito" was established late in the twelfth century, and successive additions to its original limits, as well as the numerous donations it has received, have contributed to render it one of the most extensive and wealthy charitable institutions in the world. Men only are received here for treatment, save in the lunatic department, where provision for both sexes has been made. The division reserved for foundlings is one of the most interesting, and at the same time painful, portions of the hospital—interesting, on account of the tender solicitude displayed towards the victims of parental crime, and painful, owing to the heavy mortality weighing down upon these unfortunate little creatures. The conditions for admission are so easily filled, that children are received even from adjacent parts without the Papal frontiers. This asylum for foundlings is a favourite work with the reigning Pope, and here, as well as in the other establishments, for the relief of suffering, is his bounty liberally bestowed. "Santo Sperito" receives, on an average, fifteen thousand patients annually, and the mean proportion of deaths is nine per cent. This small number, however, obtains from the fact that many fever cases are treated, and when attended to in time, they rarely terminate fatally. I visited the museum and library, the latter composed of books left to the hospital by Lancisi.

"Santa Maria della Consolazione" is a small hospital where surgical attendance is given to both sexes.

"San Giacomo" is situated in a healthy locality on the Corso, and like the preceding, is a surgical hospital, offering, however, more extensive accommodations.

Dr. Valerj is attached, in his capacity of Professor of Clinical Medicine, to the "Santissimo Salvatore," situated within a few steps of the Lateran Basilica. It is designed to receive females only, and there is connected with this hospital an obstetrical department for "honestis feminis," as the inscription, let into the wall, and bearing the name of Pius IX., the founder of this division, testifies. The mortality here is about fifteen per cent., but this figure cannot be given without making the remark, that many cases of chronic disease, as I myself have witnessed, come here when arrived almost at their last period.

"San Rocco" is a small lying-in hospital, where the greatest secresy is observed concerning all who enter its portal, and where the greatest care is taken to shield the reputation of those whose virtue has yielded. Persons who take a proper view of the object of this institution will see, in the endeavors to restore to a more honourable walk of life, the continuation of the work of the Saviour, who spurned not Magdalen, and who forgave the woman taken in adultery.

"Santa Trinita dé Pellegrini" is another very interesting establishment, founded in the sixteenth century, by Saint Philip Neri, with the intention, as is shown by the name, of offering hospitality to indigent travellers. In years of Jubilee, "several hundred thousand" strangers come here for assistance. Besides this general destination, it serves as a place of retreat for convalescents, playing much the same part as the Hospital of Vincennes is made to perform towards the public institutions of Paris.

The above hurried description of the charities, etc., of Rome, prepared in the few leisure moments a visit to its hallowed precincts allows, I feel, renders but imperfect justice to the noble works of mercy, with which the City abounds, and I regret being compelled to pass so rapidly over so much that is worthy of praise, and to be merely able to mention the societies for distributing marriage portions to meritorious females, for burying the dead, etc., etc. In the Colosseum, whence formerly rose the barbarous cry: "Morituri te salutant!" now stands the emblem of that new civilization, which has triumphed over its imperial opponents: making Rome among the first to feel its benefits, and causing the pilgrim to rejoice in still finding at work, on its mission from above, the gentle spirit of charity, with such ubiquity that the "Mistress of the World" need fear no competition, whilst offering a glorious example to other capitals. T. L.

DUBLIN, October, 1866.

The initiatory letter of your correspondent, will convey to your readers intelligence of matters medical, which will be read, and some no doubt, with an interest proportionate to that which they have excited amongst ourselves. Let me hope that the information which it will be my duty, as your representative in the Irish school of Surgery, to forward to you, may be the means, not only of instructing and amusing your readers, but of maintaining, amongst those who are already familiar with the persons and place, of whom I write, an interest in the school, in which many of them have acquired their profession.

As I write in the last week in October, I find all activity in Colleges, Schools and Hospitals. The medical session is nearly a month old in London, for some unknown reason, and, as may be supposed, our lecturers, Hospital Surgeons, and "grinders" are all alive. The lecturers are giving the last stroke to the highly moral and, as far as I can ascertain, particularly useless platitudes of their introductions and are furbishing the lecture notes of last year—in some cases of the last ten years—neatly dovetailing in the latest novelties of Huxley or Owen.

The Hospital Surgeons are filling up their beds with "good" cases, and if they are lucky, a few capital operations to lead off with, as a "draw" for the students. The "Grinders" are radiant with affability towards the first year's men to whom they, most considerately, offer themselves *in loco parentis*, extending their kind offices so far as to take their money in the handsomest manner and enter them for just so many course of lectures, as will allow them to squeeze themselves into the Profession, putting up the balance safely and comfortably at their own credit in their bankers' hands. It is my duty to narrate not to discuss, or I could, with advantage to the community, expose the system of mock apprenticeship, which has lately grown up for the pecuniary aggrandisement of a few, and carried on by a system little short of dishonesty.

I am sorry to inform you, that the Cholera, which has been for the last three months the all engrossing topic with the Profession, is maintaining its fatal course in spite of all efforts to check it. It has not yet reached a great numerical virulence but its fatality is fifty-four per cent., and it has shown a disposition rather to advance than subside.—The dispensary medical officers of our City have been on duty night and day. Sanitary precautions have, under the superintendence of our indefatigable officer of health, Dr. Mapother, been vigorously pushed forward. Street disinfection by carbolic acid, has been liberally employed and yet the epidemic grows apace.

The Queen's University, in Ireland, has, as many of your readers are doubtless aware, contributed a certain proportion to the Practitioners, who have annually obtained their qualification in the Irish school. Its degrees have had the advantage of cheapness, costing only five pounds, while those of the University of Dublin, and of the King's and Queen's College of Physicians, have been much more expensive. On the other hand, the demand for the *imprimatur* of the Queen's University, has been greatly restricted by the legal necessity for a three months' residence in one of the Provincial Colleges of Belfast, Galway or Cork; the Medical Schools of which, whatever their merits, were, at least, less fashionable.

The government of Lord Palmerston, desiring to free the University of this incubus, and at the same time, to do something to satisfy the importunities of the advocate of a Catholic University, obtained from the Queen her signature to a new charter, the effect of which will be, to throw open the degrees of the Queen's University to all comers, irrespective of their place of study. It will easily be anticipated, that the Provincial Colleges, which subsisted, in great measure, on Metropolitan Students, compelled to "put in" their three months within their walls, and whose interests command a powerful following in the convocation of the University, have maintained their cause with all their strength and all their weapons. The discussion, *pro* and *con*, respecting the acceptance of the new charter (which, by the way, it is by no means certain they have any power to reject,) took place at the last meeting of the Senate, but after a most gallant defence, and a debate extending to the *argumentum ad hominem*, the College party was defeated by eleven to nine, and the educational free traders were triumphant. This decision was met by an indignant protest, on the part of the convocation of graduates, a few days later, but as that assembly is invested with no power whatever, but that of talking, they are, it is believed, likely to meet with the same reply, as was accorded by Lord Eldon to Hone, the infidel, when he commenced his harangue, "My Lord, I protest——." "Well, protest and go about your business."

The medical aspects of this change (if it may be regarded as a *fait* *accomplei,*) are general and special. The general consideration, is the danger of the principle of granting degrees on an examination only, with an insufficient curriculum, or none at all—the objections to which will occur, at once, to all your readers. The questions simply are:—"Can an examiner be perfectly certain of judging fairly of a candidate's qualities?" "and have we any guarantee that the degree-granting may not, in time, generate into mere diploma traffic?"

The special and local bearings of the change are, briefly, that the metropolitan teachers are rubbing their thumbs at a scheme of centralisation which will keep the students in town, while the King's and Queen's College of Physicians, Trinity College, and, in a less degree, the College of Surgeons, must regard with apprehension, a movement which brings into competition a body granting such cheap diplomas.

The Profession at large, fear that the almighty guineas may tempt the Queens University to a relaxation of the inflexibility which it promises, and that a flooding of the market with cheap and bad practitioners, may be the result.

The early death of Dr. Glascott Symes, a young Surgeon of first rank amongst his contemporaries, has caused a vacancy in the Medical Staff of Dr. Stevens' Hospital. The usual course of election has hitherto been for the Resident Surgeon, to be promoted, but this arrangement has, I understand, by previous consent, been departed from. The competition for this, one of the first hospital surgeoncies in Dublin, attracted only two candidates, Dr. DeRicci and Dr. O'Grady, with whose pretensions the governors do not seem to have been satisfied, for they have postponed the election for three weeks, with a view to advertising the vacancy.

Another vacancy of much importance has occurred by the death of Dr. Harvey, the Professor of Botany in the University of Dublin, and one of the first authorities in Europe on algæ. Anent the competition for this appointment, another professional scandal has come to light. A Doctorate in Medicine is an essential qualification and it appears that the Board of Trinity College conferred the M. D. honoris causa on Dr. Harvey, to enable him to hold the professorship. The Senate of the Queens University have put a candidate into the field in the person of Professor Joseph Peay Greene, of Cork, by a similar process of making him a Doctor of Medicine honoris causa. As Mr. Greene is said never to have been in a hospital—never attended a medical lecture—never seen an anatomical subject, nor ever administered a dose on his own responsibility, it is considered an extreme stretch of authority on the part of the Senate, and a most dangerous innovation on the custom of the Profession, in whose ranks he is in future legally empowered to practice.

The system of sessional examinations, in which students are admitted by the batch, instead of singly, as heretofore, has been lately revived by the Royal College of Surgeons, and the King's and Queen's College of Physicians with signal success. The students have largely availed themselves of the new arrangement, no doubt desiring to free themselves of one-half their studies, and, perhaps, hoping to pass more easily in the crowd.

Writing at the end of the dead season, you will understand that I can have little literary intelligence to send you. The book of most note lately emanating from Dublin, is "Contributions to Medicine and Midwifery," by Dr. Thomas Beatty, President of the College of Physicians. It is highly spoken of by the critic of the Medical Press and Circular, and by the Profession generally. Sir Dominick Corrigan has issued a cholera map. He is a strong opponent of the theory of the contagious nature of cholera. A further addition to medical biography has been made in the memoir of Sir Patrick Dunn, M. D., by Dr. Belcher, Fellow and Censor of the King's and Queen's College of Physicians. This work has been deemed so valuable by the body to which Dr. Belcher belongs, that they have at their own expense, published it in a handsome form, in every way creditable to our Dublin publishers, and to all parties concerned. Though nominally only a memoir of Sir P. Dunn, it is really a history of the Medical Profession in Ireland, from 1654, to the present day, and it contains matter that will prove of great interest to a large circle of literary men, as well as to our own Profession. In a review which has appeared in the Irish *Times*, the writer says, "we cannot but remark the deep obligation the Profession of Physic owes to the learned author of this highly interesting work which we confidently recommend to the notice of every one, desirous of possessing an accurate history of the early rise and progress of the Profession in this Country." T. W. H.

LONDON, OCTOBER, 1866.

EXCISION OF JOINTS—CASE OF GASTROTOMY—THE RHINOSCOPE.

I have an impression that excision of joints is an operation as yet very little practised in America; but whether or no I am right in this, it will not be amiss for me to say a little about our English experience on this subject.

Excision is generally recognised as an important step in operative surgery, but it is not yet universally adopted, even in London; two of our largest hospitals, St. Bartholomew's and Guy's, not favouring the operation. St. Thomas's and King's College Hospitals, on the other hand, are distinguished for the great number of their cases of excision. The last four months have seen the termination of six cases of excision of the knee, at St. Thomas's alone—one of them fatal.

The operation was first practised, to any extent in London, by Fergusson at King's, and South and Solby at St. Thomas's, and became for a time, a very attractive novelty; and, as is usual with novelties, it had a great run, but not with the most satisfactory results. This was not to be wondered at, for in the popularity of the operation, it was performed in many very unsuitable cases, the calmer judgment of the

Surgeon being sometimes obscured by his eagerness to perform the favourite operation whenever an opportunity presents itself. Of late, more hesitation has been felt, and the value of the operation has been questioned by some; while others have taken more care in selecting their cases, and consequently the results are more favourable.

The joint which has been more frequently excised than all others, is the knee, so much so that in speaking of excisions, one naturally refers to the knee-joint—its use, has not, however, been confined to this, but other joints, as the hip, shoulder, and especially the elbow, has been subjected to the operation. Some cases of excision of the elbow-joint have been very successful, even to retaining, or rather regaining the action of the arm, the object being in this case, not to secure bony ankylosis, as to the case of the knee joint, but to favour the formation of a new joint, more or less perfect, between the cut ends of the bone. The knee-joint cases are, however, so much more important, that I shall confine what more I have to say to them alone.

The incision preferred for the operation, is a horse-shoe shaped one, with the convexity downwards across the ligamentum petellæ, and the ends carried far backwards to allow free drainage. This incision is carried into the joint, the knee is flexed, and the flap turned upwards. The crucial ligaments are, by most Surgeons, divided on a director, which is, by no means, an unnecessary precaution, as the femoral artery has been divided more than once. Sometimes the hamstring muscles are much contracted and troublesome, but I never saw a case in which it was necessary to divide them subcutaneously in this operation, though it is often talked of. The articular surfaces of the femur and tibia are sawn off with a saw resembling a large and fine metacarpal saw, called often Butcher's saw, from the Surgeon who brought it into use—though a very similar instrument is described and pictured in the works of the illustrious old French Surgeon, Ambrose Paré. It is very important to remove all diseased structures from the joint, soft as well as hard. The patella is not generally removed, but this is a question between operators; on the one hand, the patella, if allowed to remain, strengthened the union of the bones, while on the other, it is said to favour the retension of the discharges in the joint. Its surface, at least, is generally sawn off, and if this is at all diseased, of course there could be no question about it.

The splint used at St. Thomas's is a modification of the ordinary Liston or MacIntyre, with the joint at the knee, so constructed as to facilitate the removal of dressings and the exit of pus, while a flat piece of metal is carried up from the outside of the splint to the arm pit, to act as a long outside in counter extensions, and for steadying the splint. It may be necessary to move to a clean splint the day after the operation; after this the longer it can be left the better, without changing, the average time being about thirty days. The metal splint is with us usually discarded about the twelfth or thirteenth week, and a gutta percha or leather splint adopted, which the patient can continue to wear for some time after he begins to walk.

The average duration of convalescence is about two hundred days, but the extremes differ very widely. One case at St. Thomas's Hospital was able to walk nine weeks after the operation, and discharged cured, in eleven weeks; while Mr. Price had one discharged cured in eight weeks, but still to wear a leather splint.

As I said before, the choice of proper subjects for the operation is of the highest importance. It will not be likely to succeed in cases where there is actively progressing disease, for the new surface will then probably take on a similar unhealthy action; and in such cases amputation is preferable. Of course also where the existence of necrosis is either known or suspected, at any depth from the joint, excision is to be avoided, as we may be enabled by this operation, to remove the whole of the disease. The cases then which are most favourable for excision are those of chronic disease, where there is not much active mischief going on, and where yet the joint is so far disorganized as not to encourage the hope of recovery without an operation. Of course it is impossible to say, in some cases, that they would not recover by a merely expectant treatment—rest and proper position of the limb—to which may be added counter-irritation by blisters or potassa fusa—but where there is chronic disease of the cartilages, this, is, at best, a very tedious process, very wearing to the patient, and very doubtful in its final result. The disease, too is apt to recur after apparent cure, by this treatment. I can call to mind more than one well marked case of this, where a patient after being under treatment, one or perhaps two years or more and sent out apparently well, has returned within a year, with a relapse, and excision has had to be performed in the end—perhaps after more than one partial recovery and recurrence. Excision on the other hand, usually gives great relief from pain, the health becomes much improved by the drag being taken off the system, and convalescence is certainly in the majority of cases not nearly so tedious.—In the proper class of cases too, excision may favourably be compared with amputation, as well as with the expectant treatment. In the first place, a natural limb, perfectly stiff at the knee, is far more convenient and useful than any artificial limb. And secondly, if excision fails, amputation can be performed subsequently, and experience proves that the second operation is not more fatal than ordinary amputation, in fact it is rather less.

As to the result of excision of the knee the following statistics are interesting: Mr. Butcher in 1857 collected fifty cases, of which thirty-two per cent. failed, either by death, or amputation having been afterwards necessary. Mr. Barwell in 1861, collected one hundred and sixty cases, of which thirty-two per cent. were failures. And of twenty cases which had occurred in St. Thomas's and St. George's Hospitals in 1863, thirty per cent. had failed by death or amputation. The correspondence of these statistics is rather remarkable. The actual mortality out of these was 21.54 per cent. Now the death-rate after all amputations of the thigh, taken together, is calculated at forty-five per cent.; and hence Butcher jumps to a hasty conclusion that "the danger of excision of the knee joints is considerably less than that attending amputation." But in this comparison a great error seems to have been committed; for the high rate of mortality in amputations of the thigh depends mainly on primary amputations after injury; and the death-rate after amputation for disease, is only 20.35 per cent., so that this, compared with 21.54 leaves a slight balance in favour of amputation. This appears to have been overlooked by all writers on the subject.—The advantages of excision, are, however, independent of this, and it is sufficient to show that its mortality is not appreciably greater than that after amputation, to recommend it as an important advance in practical surgery.

An interesting case of gastrotomy, performed for stricture of the œsophagus, has lately come under my observation.

The patient, a man aged sixty-one, had been ailing about three months with increasing difficulty in swallowing food, so that when admitted into hospital he could swallow no solids, and only extremely small quantities of liquids. Repeated attempts were made to pass bougies, but without any success, the obstruction, which seemed to be about midway between the pharynx and cardiac orifice not even allowing of the passage of a small catheter..

As this state of things continued, and the man became more and more starved, it was resolved to perform the operation of gastrotomy, and this was accordingly done by Mr. Sidney Jones, on the 22nd September, about a month after the patient's admission into hospital. A vertical incision was made along the upper part of the left semilunar line, two inches in length, down to the peritoneum; no vessel of importance were wounded; the stomach was found without much difficulty, its wall secured by stitches to the margins of the wound, and opened.—Food was poured in by means of a funnel every two hours, but it did not seem to pass readily out of the stomach, and occasionally regurgitated through the funnel the next time he was fed. He constantly complained of hunger and of great thirst. The day after the operation he suffered slightly from cough, but this was speedily alleviated, and he continued in much the same state for the next few days, not apparently gaining or loosing ground to any extent, and after this, he gradually sunk, having towards the last some dyspnœa and lividity of countenance. He died on the 3rd of the present month, eleven days after the operation.

At the post-mortem examination, the opening in the stomach was found to be about two inches from the pylorus, and its edges adherent to the edges of the wound, except at the upper part, where was a small cavity in the peritoneum, bounded by the left lobe of the liver, the stomach, and the abdominal wall, and containing puriform lymph.—This cavity was, however, shut off by adhesions from the rest of the peritoneum, which latter was free from inflammation and perfectly healthy. The mucous membrane of the stomach was also free from inflammation. The cause of the œsophageal obstruction was found to be a hard tumour involving the œsophagus and completely surrounding it, about the level of the second and third dorsal vertebræ. The lining membrane of the œsophagus was not destroyed, and its canal readily admitted of the passage of a director, but was tortuous, passing obliquely from the right to the left; it was also considerably bulged above the stricture. The tumour was apparently scirrhus in character. The lungs contained some old cretaceous masses, and the posterior parts of both were consolidated, the right being rather further advanced in disease than the left, the former being grayish, the latter in a state of red hepatization. The larynx was somewhat compressed, and the right true vocal chord ulcerated. There was a considerable amount of cerebral (sub-arachnoid) effusion. The left kidney contained a mass of encephaloid cancer the size of a cherry. This is the second time that this operation has been performed by the same Surgeon. Besides Mr. Jones's two cases, I believe there are only six cases of gastrotomy on record. This case is especially interesting, in that the man escaped what would appear to be the great danger in the operation, namely, peritonitis, and died of a low form of pneumonia. It is worth notice that the opening in the stomach was only two inches distant from the pylorus, and there would perhaps be an advantage in making it nearly to the cardiac orifice. The reason for making it, as in this case, of course is, that the incision, being along the semilunar line, need not pass through any muscle.

I see that Dr. Caswell has lately published, in New York, a translation of Dr. Smeleder's works on Rhinoscopy and Laryngoscopy. The former subject is, practically, almost new to us, as, I suppose, it is to you. The examination of the posterior nares would naturally be much more difficult to accomplish satisfactorily than that of the larynx, and the results are, perhaps, of less general interest. Yet, in aural surgery, it promises to be of very high value. It is well-known that a large proportion of cases of deafness proceed from the affections of the naso-pharyngeal membrane and eustachian tube; and such might often be diagnosed and treated by means of the rhinoscope, with the aid of which the orifice of the eustachian tube can be seen, and catheterization of the tube performed.

I do not think I communicated to you the termination of the case of cæsarian section, performed by the aid of Dr. Richardson's ether spray, which I mentioned some months back. The patient recovered, rapidly and completely, without a single bad symptom. The ether spray has since been repeatedly used for ovariotomy.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex Damnatur cum nocens Absolvitur."

A Handy Book of Ophthalmic Surgery for the Use of Practitioners. By John C. Laurence, &c., &c., and Robert C. Moon, &c. With numerous illustrations. Philadelphia. Henry C. Lea. 1866. pp. 191.

We confess to an unfavourable prejudice against all medical books bearing the title, hand-book, or, as in the present instance, handy-book. In the attempt at conciseness, there is great risk of failure to meet the wants of the two great classes of readers; viz: the tyro, and the experienced practitioner. The former needs full instruction in the minutiæ of the subject, and the latter experiences a feeling of dissatisfaction with the superficial manner in which each subdivision is usually handled. We regard the Work before us, to some extent, obnoxious to this criticism.

In addition to this, we think that the space, included within the narrow limits of the Work, is not distributed proportionately to the practical importance of the subjects. Thus, all, or nearly all of the cases reported, might have been omitted. At any rate, the main facts of these cases might have been more concisely stated.—The chapter on vision, and the large drawing of a hat-hook, (page 72,) might have been omitted altogether. The space thus occupied might have been more profitably devoted to extending the articles, or on other subjects.

The operation for the cure of cataract by displacement is totally ignored. Now cases do occur, as stated at page 110, where extraction, having been followed by disaster, is found to be inapplicable. In some of these cases, the operation by displacement should be adopted. In the description of Bowman's operation for the cure of fistula lachrymalis, no reference is made to the style recommended by Walton. Our experience corresponds with that of the latter, when he says in regard to the dilatation of the duct by means of probes of different sizes: "The process is, however, as I find, tedious; and so disagreeable that but few persons, in public or in private, will submit to it sufficiently long." Our experience is decidedly in favour of the style recommended by Walton, and figured page 347, London edition. It consists in an arm at the upper extremity, bent nearly at right angles to the main shaft, and having a slight double curvature. The extremity of this arm projects slightly over the edge of the lower lid, and, in some instances, fits very nicely in the groove formed by slitting up the lower canaliculus. In this event, the arm is entirely concealed, which, to some patients, is a matter of importance.

We object to the sweeping condemnation of the use of mercury in iritis. While we freely admit, that in some cases, the use of mercury is not borne well, and that turpentine and iodide of potash are more applicable, yet, if there be any points of practice well settled, we do regard that of the great value of mercury in iritis, given with discretion, (of course,) as one of them. In our opinion, if this agent be cautiously used, it will not so often happen that "after all the acute symptoms have passed off, vision may remain seriously impaired, from the affection of the vitreous or the choroid." (p. 99.)

The following passages seem to indicate some disposition to return to sober second thought, in the present state of monomania on the subject of iridectomy. "We next discuss the rationale of the operation. In this point of view, iridectomy is singularly weak. Whilst nearly every other operation, not only in ophthalmic, but in general surgery, has some tangible reason to exhibit for its performance, iridectomy stands almost alone, in the utter inefficiency of the various far-fetched explanations, that have been from time to time assigned for its assumed efficacy." * * * * "Iridectomy is undoubtedly *the* remedy for glaucoma—absolutely so in all acute cases, to temporize with which, with useless remedies, may, in the present state of knowledge, be regarded as almost criminal. *But it is an undeniable fact, of which we have ourselves seen several examples, that certain subacute cases recover under general treatment*, of which we regard belladonna and iodide of potassium internally, and atropine topically, as the most potent elements." (p. 136.)

As a preliminary operation to extraction, iridectomy is little more than alluded to.

We feel disposed to criticise other parts of the Work, but think enough space has been devoted to this notice. We fear, too, that we shall be regarded as highly presumptuous in daring to pass censure upon a Work emanating from so high authority. We think, however, that this good result may follow from the publication of this Work, viz: many who may purchase it, may become sufficiently interested in the vast variety of subjects of which it treats, to desire and to seek fuller information. B.

A MANUAL OF AUSCULTATION AND PERCUSSION. By M. BARTH and M. HENRI ROGER. From the Sixth French Edition. Philadelphia. Lindsay & Blakiston. 1866.

This celebrated manual is or should be familiar to every Practitioner. Its authors are, both as hospital Physicians and Practitioners, justly celebrated for their practical skill and correctness in this specialty. In 151 small pages are detailed the results of their great experience, with easy and common sense direction for the exercise of this indispensable science at the bedside. Few can find time for reading ponderous volumes, but no one can be prevented, by ordinary causes, from acquiring, in a few hours, the short and practical lessons contained in this little work. It is handsomely printed and bound.

A TREATISE ON THE PRACTICE OF MEDICINE. By GEO. B. WOOD, M. D., LL. D., Pres. Am. Philos. Soc.; Pres. Col. Phys. and Surg., Phil.; Emeritus Prof. Theory and Practice Med. Univ. Phil.; late one of the Phys. Penn. Hosp.; one of the Authors of the U. S. Dispensatory, etc. Sixth Edition. In two Volumes. Philadelphia. J. B. Lippincott & Co. 1866.

No Physician in America requires information in regard to this Work. It is seen and known everywhere; more universally than any medical book published in this country. The author has, in this edition, added many valuable papers to the Work: one on spotted fever; one on cerebro-spinal meningitis, on diphtheria, trichiniasis, sunstroke, camp-diarrhœa, two new species of worms, laryngoscope, rhinoscope, atomizer, etc., the whole Work furnishing a fair exhibit of all the improvements in the science and practice of medicine. In other respects the Work presents its familiar appearance. The printing and binding are unexceptionable.

AN INTRODUCTION TO PRACTICAL CHEMISTRY. By JOHN E. BOWMAN. Fourth American Edition. Philadelphia. Henry C. Lea. 1866.

In presenting this Edition to the Public, the author, in doubt as to whether he should adopt the old system of symbols, or use the new unitary system, preferred by many, has made a very satisfactory decision for the practical chemist, by excluding all equations from the volume. He has in this way avoided much confusion and many objections that would otherwise have resulted. If the consequent change in the value of symbols had been the only one required, it may have been conveniently made, but this alteration in the value of symbols would have necessitated a change in the arrangement of familiar formulæ, rendering them obscure and unintelligible to those accustomed to the older method. The book is thus a neutral ground for the advocates of the old and new system, and may be thus used by all. The plates and general execution of the publisher's duties are entirely satisfactory.

A GUIDE TO THE PRACTICAL STUDY OF DISEASES OF THE EYE. By JAMES DIXON, F. R. C. S., Surgeon to the Royal London Ophthalmic Hospital. From the third London edition. Philadelphia. Lindsay & Blakiston. 1866. pp. 400.

This Work is well-known in England and America. It is a useful guide to the well-informed Practitioner, but is not advisable where experience is insufficient to counteract the injurious effects of occasional errors and omissions. Mr. Dixon speaks of the retina as a coloured tissue. Helmholtz's reflecting apparatus is spoken of as a polarizing apparatus. The practice in remedying astigmatism is defective, and his views upon hypermetropia are vague, and at times incorrect. The following subjects have not been discussed at all; tumours of the conjunctiva cornea, and lachrymal gland; symblepharon; neuritis; periostitis of the orbit, etc. These errors and omissions, however, do not seriously detract from the usefulness of the Work, which is a useful addition to the library of the ophthalmic Surgeon. The publishers have done all in their power to make this manual satisfactory and acceptable.

VELPEAU'S LESSONS UPON THE DIAGNOSIS AND TREATMENT OF SURGICAL DISEASES. A series of Lectures delivered by Professor VELPEAU, at the Surgical Clinic of La Charité. By A. REGNARD. Interne. Translated by W. C. B. Fifield, M. D. Boston. James Campbell. 1866.

This charming and valuable little Book gives, in one hundred small pages, the experience and views of Velpeau on the following practical subjects: Fractures; affections of the joints; inflammations and abscesses; affections of the lymphatic system; burns and contusions; diseases of the genito-urinary organs and anal region; affections of the eyes; statistics of operations. All who value the teachings of this great man will not lose the opportunity of obtaining them, as presented in this brief and economical form.

MISCELLANEOUS.

"Non Omnes Eadem mirantur Ament que."—HOR.

THE INTERNATIONAL MEDICAL CONGRESS of Paris will be opened on the 6th of August, 1867, under the auspices of His Excellency the Minister of Public Instruction.

The Congress, exclusively scientific, will be in session two weeks.—The Congress will be composed of original, home, and foreign members. The original members shall be the French physicians, who become such on application to the Committee on Organization; the subscription fee will be fixed at twenty francs. The adjunct members shall be those foreign physicians who communicate their willingness to attend, to the Secretary-General (Dr. Jacoud, No. 4, Rue Drouot, Paris.) They shall be exempt from all pecuniary contributions. The members of the Congress, both home and foreign, shall alone have the right to take part in the discussions. The work of the Congress shall consist in: Communications on question proposed by the Committee; Communications on subjects foreign to the programme. The Committee have decided on the following programme: Pathological anatomy and physiology of tubercle. Tuberculization in different countries, and its influence on general mortality; General accidents which cause death after surgical operations; Is it possible to propose to the various governments any efficient measures to restrain the propagation of venereal diseases; The influence of the ordinary alimentation peculiar to different countries on the production of certain diseases; The influence of climate, race, and different conditions of life on menstruation in different countries; The acclimatization of European races in warm countries; On entozoa and entophytes which may be developed in man. Members, both home and foreign, who desire to make a communication on any of the questions of the programme, or upon any other subject, are requested to address their communication to the Goneral Secretary three weeks or sooner (July 26th) before the opening of the Congress. The Committee will decide as to the time and order in which they shall be brought before the Congress. The sessions of the Congress will take place daily, Sunday excepted. They will be held alternately during the day, and in the evening. The sessions during the day will last from 2 to 6 o'clock, P. M., the evening sessions from 8 to 10 o'clock.—No question shall occupy more than one session, and the order of busiwill be regulated as follows: 1. Lecture on the questions of the programme; 2. Discussion; 3. If time permits, communications of all miscellaneous essays. The evening sessions will be exclusively devoted to these. A maximum of twenty minutes will be accorded to each reading. At the first meeting the Congress will nominate its Bureau, which shall consist of a President, Vice-Presidents, a General Secretary, and Recording Secretaries. After the conclusion of the Congress, the Committee on Organization will resume its functions, to proceed with the publication of the Transactions of the Congress. All Memoirs read before the Congress shall be handed over to the General Secretary after each session. They are the property of the Congress. Students of medicine will receive cards of admission, but they cannot take part in the deliberations. From this Programme it will be seen that the working of the Congress has been considered in all its details, and if we consider the wide but exceedingly practical scope of the scientific questions proposed for discussion, not only can we expect a most interesting meeting of eminent physicians of various countries, but also valuable contributions to science. The time, too, selected for the assembling of the Congress is favourable. We have no doubt that not a few of our leading American savants will make their usual yearly dog-day-trip to Paris. All that is necessary to do is to commnnicate your willingness to become a foreign or "adjunct" member to the General Secretary.—*Medical and Surgical Reporter.*

Lectures at the Peabody Institute, Baltimore.—The lecture committee of the Peabody Institute, Baltimore, advertise the following as the course of lectures to be delivered at the institute this season: November 20, 22, 27, 29—Professor Henry, of the Smithsonian Institution—"On the principles of Science, as illustrated by Meteorology." December 4, 6, 11, 13.—Prof. John W. Draper, of the University of New York—"The influence of Climate on Races." December 18, 20—Dr. E. S. Gaillard, of Richmond, Va., 1st—"The Natural Beauties and Curiosities of Florida. 2nd—The Relation of Science to the Truth of the Mosaic Record." January 1, 3—Professor J. L. Cabell, of the University of Virginia—"The Architecture of the Animal Creation." January 8, 10, 15, 17—Professor Stephen Alexander, of Princeton College—"On Astronomy." January 22, 24, 29, 31—Professor George J. Chace, of Brown's University, Providence.—"Airs and Oxygen as applied to the Practical uses and arts of Life." February 5, 7, 12, 14—Professor Joseph Le Conte, of the University of South Carolina—"On Coal and Coal Oils." February 19, 21—Professor Christopher Johnston, of Baltimore—"On the Microscope."—February 26, 27, March 5, 7—Professor Josiah P. Cooke, of Harvard University—"Fire and Frost."

Reverdy Johnson, Jr., Josiah Pennington, George W. Dobbin, George W. Brown, Joseph Cushings, Jr., Committee on Lectures.

Richmond Times.

RELIEF FOR SPASMODIC ASTHMA.—Dr. J. S. Monell, in a communication to the *Medical Record* on this subject, writes as follows:

"Having been a sufferer from frequent, severe, and protracted attacks of spasmodic asthma, for a period of fifteen years, and having by accident hit upon a means for speedy relief, I am induced to present the same to the Profession, in the hope that by its adoption it may prove as beneficial to such as are subject to attacks of this distressing affection, as it has been to myself and to some of my patients.

"In December, 1865, I was having a severe attack of asthma one evening about 9 o'clock. I placed myself standing at the foot of my bed, with my arms folded on the foot-board for a pillow, the forehead resting on the folded arms, and the feet placed at a sufficient distance to make a partial semi-circle of the body. While labouring severely for air, the thought occurred to me to cease breathing for a few seconds. I did so, and after several trials I felt some relief. I then expired all the air that it was possible to, after which I determined not to inspire again until I found it absolutely necessary. I succeeded in waiting several seconds, then inspiration was carried to its fullest capacity and retained with great effort for many seconds. This act of forced expiration, waiting, thorough inspiration, and again waiting, was continued for some fifteen minutes, and to my delight the spasm was perfectly relieved. I have since relieved several similar attacks by the same method, in less than two minutes.

"I have advised this course for many others, and their testimony has been uniformly satisfactory, except in one instance, that of an aged lady with heart disease. It requires a great effort on the part of the patient to perform the act. It is well for the medical adviser to perform it personally in presence of the patient, and then desire him to perform it once or twice under his supervision. The first attempt of retaining the inspired air during the asthmatic attack will cause the patient to think he cannot continue it, but perseverance will soon delight him with relief from the spasm."

THE PACCHIONIAN BODIES.—One of the most elaborate papers which have for some years been published on the anatomy of these structures, is that which appears in the *Quarterly Journal of Microscopical Science.* In this Dr. H. Charlton Bastian describes the result of his own observations, and collates them with those of other observers. Dr. Bastian's views have been to some extent anticipated, as he freely admits in concluding his essay. The Pacchionian bodies he regards as being perfectly continuous with the arachnoid, and being composed of precisely the same histological elements. They do not contain either nerves or vessels. They are covered with an epithelium which is similar to that of the arachnoid, and in some instances is arranged in multiple layers, They result from the fibrillation of a homogeneous hyaline substance. which seems to grow in the form of a branched network, reticulating in every direction so as to produce a pretty compact, sponge-like structure. Very frequently the Pacchionian bodies contain deposits of brain-sand; but the *corpora amylacea,* to which Kolliker alludes, have not been found by Dr. Bastian. Dr. Bastian concludes that these bodies have no serious pathological significance.

MEDICAL ATTAINMENTS *versus* SOCIAL TALENTS.—Young Physicians often dream that by extending the circle of their private acquaintances, they thus afford themselves the best chance of extending the circle of their private patients. No view could be more chimerical, no error more fatal. No man will, in any case of doubt or danger, intrust to your professional care the guardianship of his own life, or the lives of those dear to him, merely because he is on terms of intimacy with you.—Make yourself known, but let it be for your professional acquirements. You must be respected not merely in your character of a social friend, but in your calling as a physician. The accomplishments which may render you acceptable in the parlor are nor always those which would make your visits longed for and valued in the chamber of sickness.—*Prof. J. L. Crawcour's Valedictory Address to Grad. Class of N. O. School of Med. Session* 1865-6.

PREPARATION OF SOLUBLE PRUSSIAN BLUE.—Anatomists and physiologists have long used soluble Prussian blue for injecting their preparations. It was M. Schrœder von der Kolk who first made this application, now so much esteemed. It is very important that the Prussian blue be soluble in water. To obtain it in this form it is necessary to use a great excess of yellow prussiate in concentrated solution; the iron should be in a state of sesqui-chloride, of which one-eighth to one-tenth of the prussiate employed should be used. It should be washed on a filter with water until it commences to blue the washings, when it should be expressed and dried in the air.—*American Journal of Pharmacy.*

HOMŒOPATHIC LIFE-ASSURING.—The following indicates a clever method of attempting to raise a business; but the scheme does not seem promising in the future, from its history in the past. A Journal tells us that, it having been found that treatment by homœopathy increased the value of human life, a Life Assurance Company took the hint, and started on this platform into life. But this Company was, for some cause, merged into another. The principle was correct, but the scheme was badly supported. In fact, as the Yankees say, it wouldn't float. Then came a better scheme, (founded on truly homœpathic principles,) offering to treat the victim either homœopathically, or, if he preferred it, on ordinary assurance principles; of course, the homœopathic life-insurer being done the cheapest. We are not told if any provision was made for a change of principles, nor if this plan was more successful than the former. However, there is, at all events, a chance for every one now. The Empire Assurance Corporation, with a moderate capital of half a million, has opened a homœopathic section for people of this credulity.

But the Directors have not felt justified in making, in advance, a reduction of the premium rates; but they are assured by those who have mainly promoted the homœopathic section, that at the end of each quinquennial period for the division of profits, an advantage will be shown in favor of the assured in this section. The business in this section will be kept entirely distinct from the general business; so that by this means the Directors will be able to complete statistics from time to time, by which will be ascertained the comparative value of lives in the homœopathic and general sections.

If our homœopathic friends will consider this promise of the Directors equivalent to a reduction of 10 per cent. on the premiums, we can only say their credulity is even bigger than we thought it to be.—*British Medical Journal.*

INSUFFLATION OF MEDICATED POWDERS IN GLEET.—Dr. Mallez has contrived an instrument by which medicated powders can be conveyed to the membranous portion of the urethra, a region where lies the cause of the gleet, and which region ordinary injections cannot reach. The instrument is chiefly composed of a catheter opened at both ends, another which glides into it, and an apparatus for receiving and projecting the powders. M. Ricord presented the instrument to the Academy of Medicine of Paris, and cases are mentioned in which excellent results were obtained by insufflating subnitrate of bismuth. It is plain that, by previous micturition, the powder may remain hours in the passage; and it is thought that the vaginal uterus, or any fistulous tract may perhaps be reached in the same way.—*Lancet.*

"DEODORIZING PROPERTIES OF GROUND COFFEE.—Dr. Barbier affirms that ground coffee possesses some remarkable properties as a disinfectant. In several cases where he had to make post-mortem examinations of bodies under very disagreeable circumstances, he found that a handful of coffee strewn over the body and and about the room quite overcame any bad odour."—*Lancet.*

Preparations for Cholera.—A French prefect wrote to one of the mayors of his department advising him, as the cholera had broken out in the district, to take all the necessary precautions. After some time the mayor wrote to say that he had taken all the proper steps, and upon the prefect sending to see that they were effectual, he found that the only preparation the mayor had made consisted in having a large number of graves dug in the churchyard.—*Lancet.*

The removal of Prof. Jones from the State has made it necessary for him to resign the Editorial management of the Southern Medical and Surgical Journal, which will hereafter be edited by L. A. Dugas, M. D., Professor of Surgery in the Medical College of Georgia; DeSaussure Ford, M. D., Professor of Anatomy in the Medical College of Georgia; W. H. Doughty, M. D., Professor of Materia Medica in the Medical College of Georgia.

MEDICAL NEWS.

The Micro-Spectroscope in the Detection of Blood Stains.—At the trial of Coe for the Mountain Ash murder, corroborative evidence of the presence of blood on the hatchet was furnished by the micro-spectroscope. Dr. W. B. Herapath conducted the scientific inquiry, and, we believe, has the merit of first using the micro-spectroscope in medico-legal inquiry. Of course, the evidence furnished by it cannot prove the presence of human blood, but it may prove a valuable corroborator of other testimony. The following is Dr. Herapath's evidence:

Dr. Bird Herapath sworn: I am a Fellow of the Royal Societies of London and Edinburg. I practice as analytical chemist and also physician. The hatchet produced was given me by Mr. Wrenn, and I carefully examined it. On the metallic portion I did not find any marks upon which I could rely. I removed the handle, and experimented on thin slices of wood which I took from underneath the metallic ring. I examined those sections with a microscope, and found the majority of the stains were due to oxide of iron; some of them showed clotted blood; in some cases the woody portions had been infiltrated with the colouring matter of blood changed by the action of water. On some of the sections of the handle I found globules of blood, and by the micrometer I measured the size of those globules.—I placed a section of the handle in a glass cell in which there was a fluid medium, and the blood globules floated off into the cell, and by the measurement of these I could determine the size of the globules therein contained. These globules were exactly the same size as some globules from dried human blood, which I purposely procured, and tested with the same apparatus in the same way. Finding this evidence of blood to be small, I obtained more numerous sections of the coloured surface of the handle of the hatchet—immersed them in distilled water, and obtained thereby a slightly coloured solution, which, after filtering, was ready for chemical tests, and for optical examination by the micro-spectroscope. I subjected this fluid to the action of light, and it had, undoubtedly, the properties peculiar to a solution of blood. When a solution of blood was examined in this instrument (instrument here produced), the fluid absorbed some of the rays of light, and thus altered the spectrum or rainbow. Within the green and on the border of the yellow rays two dark absorption bands were produced by the blood fluid. Only one other substance would produce two dark bands—that is, cochineal dissolved in ammonia; but the position of the two bands was different. The spectroscope alone would not enable me to readily distinguish between the two, but combined with chemical examination it would satisfactorily do so. From this optical test I was satisfied that the sections of the hatchet had been stained with blood—and by chemical analysis I also demonstrated it was blood. The combination of the three tests showed that the substance on the hatchet must have been blood.—*Medical Times and Gazette, March* 24, 1866.

THE MILITARY ASYLUM AT MILWAUKIE.—The National Military Asylum to be erected in Milwaukie, Wis., will be located on a tract of about five hundred acres, in an elevated and dry locality. The buildings will consist of three or four separate structures, divided into parlours, reading, sitting, sleeping and bath-rooms, and a hospital, besides others requisite for the comfort of the inmates. They will be constructed on a magnificent scale, and will be capable of accommodating from ten to fifteen thousand inmates. They will be erected at a cost of nearly or quite a million dollars. The asylum will be placed in charge of disabled officers, and will be for the accommodation of all disabled Union officers and soldiers of the late war. Two other similar institutions are to be established in other localities, under the act of Congress.

A PRIZE OF $250 OFFERED.—We would call the attention of our readers to a communication in another column, offering a Prize of $250 for the best Essay on the "Etiology of Epidemics." The gentleman who offers the prize is well known to the Profession of the country, and is entirely responsible. His name will be announced at the proper time.—*Medical and Surgical Reporter.*

FEMALE DOCTORS.—A young lady in Paris, having honourably passed two examinations in mixed science, has been authorized by the Minister of Public Instruction to go through a preparatory course of medicine at Algiers, as her medical attendance might be of great service to the Arab population, and through her the boon of medical science might penetrate the tent and harem of the Arab, where no male doctor would ever be admitted. Lately another lady has passed her examination as a midwife, and has obtained permission to offer herself as a candidate for examination at Paris for the degree of doctor of medicine. [*London Lancet.*

LOCAL ANÆSTHESIA IN CÆSARIAN SECTION.—Dr. Newman, of Stamford, England, recently performed the operation of Cæsarian section on account of cancerous disease of the os uteri and lower segment of the uterus. Two ether jets from Richardson's spray apparatus were employed, and a space one inch broad and six inches long was rapidly narcotised. No pain whatever was experienced by the patient, and uterine contractions took place firmly and rapidly. It is evident from the description of the operation that the local anæsthesia was as perfectly successful as any anæsthetic could be; and that, again, as in Dr. Greenhalgh's patient, it caused good uterine contractions, without one untoward or dangerous symptom. The case has progressed most favourably, and, so far as the operation is concerned, Dr. Newman reports the "woman is well."

Dr. Greenhalgh, on the 26th of August, performed again the operation of Cæsarian section, having first produced local anæsthesia by the ether spray. The obstruction to delivery was a large tumour, probably malignant, having its origin in the rectum, and pressing forward upon the vagina to such an extent that it was difficult for the finger to pass to the os uteri. A single large jet from Richardson's apparatus was used in this case, and complete local anæsthesia was induced in fifty seconds. The period from the first application of the ether to complete delivery was three minutes and thirty-five seconds. The woman died on the sixth day after the operation; but notwithstanding this result, it is clear that the local anæthesia again proclaimed its many advantages.—It completely relieved the pain and so prevented shock; it subdued hæmorrhage and induced uterine contraction.—*New York Medical Journal.*

THE MOTT MEMORIAL LIBRARY.—What the late Professor Mütter did for Philadelphia, the widow of the late Professor Valentine Mott has done for New York. At an expense of more than $30,000, she has purchased, enlarged and fitted up, at No. 58 Madison Avenue, between 27th and 28th streets, a building, in which are deposited the medical library, and the surgical instruments of her late husband, the distinguished American Surgeon, Valentine Mott. The building is designed by Mrs. Mott for the twofold purpose of a monument to her husband, and an institution of free instruction to the medical students of the colleges of New York. Board of Officers—A. B. Mott, M. D., President; Charles P. Kirkland, Esq., Treasurer; Edward Vanderpoel, M. D., Secretary.

Agricultural Colleges will be established in nineteen States, that number having accepted the provisions of the acts donating lands "for the benefit of agriculture and the mechanic arts," and received land and land-scrip amounting to 4,950,000 acres. Other States will yet undoubtedly avail themselves of the privileges of this act.

Sir Henry Holland, Physician to the Queen of England, author of "Medical Notes and Observations," etc., is about to visit the United States.

EDITORIAL.

"Nullius Addictus Jurare in Verba Magistri."—Hor.

It is gratifying to all men to have their opinions approved and their decisions sustained, by competent judges. The many subscribers to this Work, will, therefore, learn, with satisfaction, that, in a long list, the number of subscriptions withdrawn (not including the names of those leaving this Country or their homes, for destinations yet unknown) does not yet reach one per cent. It is hoped, that, to each subscriber, this approval of his individual decision will be as acceptable and satisfactory, as to the Editors, the announcement of the fact is welcome and agreeable. It has been assumed, that the interest which, in a new and untried production, has been sufficient to induce subscription, has also been sufficient to accept an occasional allusion to the condition and development of the Work. Accordingly, from the infancy of this Journal to the present period, information has been occasionally given, as to its progress and success, and, at the close of the year, it is now gratifying to furnish the aggregate decision of those, to whom the history, as well as the contents of the Work, has been generally familiar. The past year has been particularly unfavourable, for the origination of any literary enterprise; the disorganization of labour, combined with the sad calamities of the previous five years, having served to impoverish or even bankrupt thousands, upon whose support, the success of American periodical literature is largely dependent. Many of the wisest and best are yet pecuniarily helpless, and among those whose sympathy, generosity or desire for knowledge have induced them to come forward, not a few have discharged incurred obligations, at the sacrifice of physical ease and domestic comfort. Under such circumstances, as will naturally be supposed (though the usual statement of the fact has never been made), the difficulties attendant upon the publication of this Work, have been neither infrequent nor inconsiderable in character; by careful management and rigid economy, these have, however, been successfully met, and at the present time, the prospects and condition of the Journal are more prosperous and satisfactory, than the most sanguine could have been warranted in anticipating. The additions to the subscription list, during the past month, have been greater than for many months previously, and already subscriptions are being received, from those not hitherto supporters of the Work, for the volumes of the coming year. With two exceptions, the Journal has a circulation in every State, and as labour becomes organized and pecuniarily responsible, many Physicians, in accordance with their written assurances, will, it is expected, come forward and enable the Editors to make those continued improvements, which increased support alone renders practicable. Thousands in the Profession, who have hitherto, after a year's hard labour, received an ample remuneration, from the opulent agriculturist, are now dependent upon precarious collections, from those who have not yet acquired that important requisite in social stability—pecuniary responsibility. Education, necessity and example are, however, the great missionaries in producing a conversion from this state of pecuniary infidelity, and as these must, in time, generate their legitimate results, the period is rapidly approaching, when the medical labourer will be fairly rewarded, for work that is at present onerous and unremunerative. If there is truth in history, it may be assumed, that the most disastrous complications, in this connection, are past, and that as labour becomes again comparatively stable and stationary, it, will also become able to recompense those called upon to minister to it, in its invalid condition. This result must restore much of that support which is, at present, withdrawn from periodical medical literature, and the familiar though illogical reply, "I am too poor to subscribe to a medical Journal," will become known only to history. Without material aid, however, from the source thus indicated, this Work has received a support sufficient to warrant the developments that have been hitherto specified, and as less than one per cent. of this support is withdrawn, while additions are being consecutively made, the close of the first year of the Journal affords, to its Editors, just cause for congratulation and acceptable reasons for increased activity. It is less than one year since the Richmond Medical Journal was first issued, and it is now the largest medical monthly in the United States.

To the members of the Profession, the past year has been more than usually interesting and instructive. All branches of medicine have been profitably cultivated, and the resources of the Physician and Surgeon have been conspicously increased. Cruise, with his endoscope, has revolutionized the treatment peculiar to his specialty, while Richardson, with the successful application of local anæsthesia, has conferred upon mankind almost as great a boon, as was recognized and admitted in the discovery of chloroform. The scalpel and the microscope have found, in the investigation of embolism, the illumination of much of that obscurity which enshrouded the mystery of unintelligible death. Hygiene has recorded its triumphs, in the comparative shielding of many communities, from the deadly results of cholera which, until the past year, has held high carnival, in the Cities of its visitation. The small per centage of those attacked, at each locality of its epidemic prevalence, has been just cause for praise, as well as a welcome subject for gratulation and gratitude.

In therapeutics, though there have been no discoveries, many valuable suggestions have been tested and approved. The combinations of bromine with potassium, have enabled the Physician to contend, successfully, with troubles, that have hitherto mortified and baffled him, while the calabar bean has been removed, from the field of speculation, to the domain of actual and successful practice. Nebulization of medicated fluids, has given new hope to the subject of pulmonic disorder, and brought relief where the therapeutics of the past had been tried in vain. Improvements in the laryngoscope have enabled Physicians to submit obscure and previously intractable disorders to successful treatment, while the vague and incomprehensible diseases of the interior eye have, by more perfect ophthalmoscopes, been rationally classified and understandingly treated. The rhinoscope is now giving just hope, that many hitherto concealed diseases of the ear, may be clearly diagnosticated and successfully attended. Philosophy has not been idle, and one of its chief apostles, Tyndal, has illustrated and amplified his most fruitful discoveries. Spectroscopy has continuously enlarged the analytical province of chemistry, and in medical jurisprudence, the triumphs of micro-spectroscopy have enabled the representatives of medicine to deliver, for execution, criminals who, by all the resources previously known to science, would have escaped the just retribution of their crimes. By patient and scientific inquiry, spurious vaccination (as it is called) has been disarmed of its terrors, and the physical condition causative of these evils, has been, in Europe and America, satisfactorily demonstrated and explained. Ovariotomy has been rendered one of the safest operations in surgery. Indeed, in all of the departments of medicine, the labourers have been successfully at work, and while in some, happy discoveries have been made, in all, important applications have been suggested. As most of the great teachers in medicine are now contributors to periodical literature, all of these improvements are first published in medical Journals, and become familiar to Journal readers, before they can be introduced into medical text-books.

It has been a busy and a fruitful year, and while in its course, there has been ample cause for congratulation, there has also been just reason for sorrow and regret. The increasing frequency, as well as improperly prolonged insertion of Physicians' advertisements, in the daily papers, in medical and literary periodicals, with their constant and public claims to peculiar skill, in specified specialties, give evidence of a dangerous departure from long established and necessary principles of medical ethics; while the means adopted for recommending capital or even ordinary operations, to the facile eulogies of the Public, are lamented by all who value that high tone which, for centuries, has been the pride and ornament of the Profession.

Many illustrious and distinguished Physicians have, in the past twelve months, closed their earthly career, and admiring circles of which they formed the conspicuous centres, have been left to record their talents and to emulate their virtues and their actions. Several of the supporters of this Work, are numbered in that sad procession, which has thus passed away, and while the eye of friendship or affection marks them, as they vanish in the shadowy distance, the hand of appreciation records, here, this feeble tribute to their merits and their memory.

When this number has reached its readers, in distant homes, that peculiar period of the year will have arrived, which destroys conventionalities and breaks down the barriers of formality; when

friends become more friendly and acquaintance pleasingly ripens into friendship—the period associated with the birth-day of the Great Physician. The opportunity of this season is embraced, for tendering those good wishes, which neither time nor familiarity can rob of their acceptability, and which custom suggests and sanctions, at THE CLOSE OF THE YEAR.

NOTICES.

☞ The Editors of this Journal wish it understood, that they do not desire the subscription of any one who is unwilling to observe, honourably and in good faith, the "terms" to which he subscribes. It is to them far preferable to receive five dollars, at the period of subscription, or within the limits of time specified on the cover of the Journal, than to wait for the increased amount which subsequently becomes due, and in the meanwhile to be compelled to originate means, for making cash purchases of materials, that are to be furnished, as an accommodation to the subscriber. If any one prefers paying one or two dollars additional for the accommodation extended to him, it is the result of his own choice, but it is certainly not in accordance with the preference of the Editors. After the election has, however, been made by the subscriber, and private resources have, for his benefit, been onerously taxed, the refusal to comply with a contract, to which he has voluntarily made himself a party, is a breach of faith, entailing (in the aggregate) serious injury to those whose confidence has thus been betrayed. If, therefore, any one is unable to pay five dollars within the period specified, or is unwilling to pay subsequently the additional amount necessary for his accommodation, it is requested that he will abstain from subscribing. The Editors appreciate and acknowledge the prompt payment that has been made of those bills, in which there has been charged the additional amount necessary for the accommodation of the subscriber.

☞ Four Journals only having been received, the following notice is repeated:

The February, June, and October issues of this Journal being entirely exhausted, the Editors will pay 50 cents for every copy sent to Locked Box 32, Richmond, Va.

☞ In list of accepted articles, in November number, for L. N. read L. U. Mayo.

Erratum.—On page 94, vol. 11, for *corner* read *cornu*.

☞ There will be published, in the January number of this Journal, a large lithograph likeness of Sir Thomas Watson, (author of Watson's Practice,) with a sketch of his life, communicated by himself

☞ This Journal is published as a Monthly octavo of ninety-six pages. It is now the largest Medical Monthly issued in America.

The Editors offer to pay, at the HIGHEST JOURNAL RATES, for ARTICLES, ESSAYS, CORRESPONDENCE and REVIEWS OF RECENT WORKS.

The terms of this Journal have been changed; see notice on the cover.

☞ NOTICES TO SUBSCRIBERS, ADVERTISERS, CONTRIBUTORS AND CORRESPONDENTS.

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OBITUARY.

DIED, on the 18th ultimo, at "The Ruins," near Statesburg, S. C., after a long and painful illness, VIRGINIA, wife of Dr. F. Peyre Porcher, and daughter of the late Hon. B. W. Leigh, of Richmond, Va.

ACCEPTED ARTICLES.

On the Use of the Binocular Microscope. By J. C. Dalton, M. D., Professor of Physiology in the College of Physicians and Surgeons, New York.

On the Treatment of Delirium Tremens. By Professor Morse Stewart, Detroit, Michigan.

Case of Severe Injury to the left Kidney, and other Abdominal Viscera, produced by a fall—Remarkable Recovery. By C. W. Chancellor, M. D., Memphis, Tenn.

Conclusions Regarding the Internal Use of Chloroform. By A. P. Merrill, M. D., New York.

Asthma. By Bernard Kelly, M. D., New York

BOOKS AND JOURNALS RECEIVED.

A Manual of Medical Jurisprudence. By Alfred Swaine Taylor, M. D., F. R. S. With notes and references to American decisions, by Clement B. Penrose, of the Philadelphia bar. Henry C. Lea. Philadelphia. 1866. From the Publisher.

Functional Nervous Disorders. By C. Hanfield Jones, M. D., Physician to St. Mary's Hospital, London. Henry C. Lea, Philadelphia. 1867. From the Publisher.

Lessons upon the Diagnosis and Treatment of Surgical Diseases, delivered in the month of August, 1865, by Prof. Velpeau. Translated. James Campbell, 18 Tremont Street, Boston. 1865. From the Publisher.

An Introduction to Practical Chemistry. By John E. Bowman, F. R. C. S., London. Henry C. Lea. Philadelphia. 1866. From the Publisher.

Notes on Epidemics. By Francis Edmund Anstie, M. D., F. R. C. S. J. B. Lippincott & Co. Philadelphia. 1866. From the Publishers.

The Common Nature of Epidemics, and their Relation to Climate and Civilization; also, Remarks on Contagion and Quarantine. By Southwood Smith, M. D., Physician to the London Female Hospital, etc., etc. J. B. Lippincott & Co. Philadelphia. 1866. From the Publishers.

Address of D. Humphreys Storer, M. D., President of the American Medical Association. Philadelphia. 1866. From the Author.

Transactions of the Medical Society of Pennsylvania; Seventeenth Annual Session. Philadelphia.

Annual Report of the Young Men's Christian Association of the City of New York. 1865-'65.

Trubner's American and Oriental Literary Record. London. 1866.

The following Exchanges are regularly received: The Atlanta Medical and Surgical Journal; Boston Medical and Surgical Journal; Braithwaite's Retrospect; Buffalo Medical and Surgical Journal; Chicago Medical Journal; Chicago Medical Examiner; Cincinnati Lancet and Observer; Druggist's Circular and Chemical Gazette; Galveston Medical Journal; Journal of Applied Chemistry; London Lancet—Original and Reprint; New York Medical Record; Nashville Journal of Medicine and Surgery; New Orleans Medical Journal; New York Medical Journal; Pacific Medical and Surgical Journal; St. Louis Medical and Surgical Journal; Savannah Journal of Medicine and Surgery; Southern Journal of the Medical Sciences; Southern Medical and Surgical Journal; The American Journal of Pharmacy; The American Journal of the Medical Sciences; Dental Cosmos; The Detroit Review; Philadelphia Reporter; The St. Louis Medical Reporter; Le Mouvement Medicale, Paris; Journal de Medecine Mentale, Paris; Medical Press and Circular, Dublin; Revue de Therapeutique Medico Chirurgicale, Paris; Revue Medicale, Paris; Cincinnati Journal of Medicine; Canada Medical Journal; Memphis Medical and Surgical Monthly; Journal of Materia Medica; The Ophthalmic Review, London; Dublin Quarterly Journal of Medical Science; Medical Mirror, London; Debow's Review; Littell's Living Age; The Farmer; London Punch.

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